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THE

MEDICAL REPOSITORY

OF

Original Essays and Intelligence,

RELATIVE TO

PHYSIC, SURGERY, CHEMISTRY, AND NATURAL HISTORY;

WITH A

CRITICAL ANALYSIS OF RECENT PUBLICATIONS ON THESE DEPARTMENTS OF KNOWLEDGE, AND THEIR AUXILIARY BRANCHES.

CONDUCTED BY

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AND

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"Cum tabulis animum censoris sumet honesti."

Hor.

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NEW SERIES.

VOL. VIII.

TWENTY-THIRD FROM THE BEGINNING.

NEW-YORK:

PUBLISHED BY E. BLISS AND E. WHITE,

No. 128 BROADWAY.

William Grattan, Printer.

1824.

ion, and reported *all* the cases as *Bilious remittents*, and not yellow fever.

The first case had sickened on the 12th July, and until the 8th of August, seventeen cases were reported to the Board of health; of these only *three* were stated as of yellow fever, *viz.* two by their attending phy-ician, and one by the resident physician. Out of this number, eight had died.—From the 1st till the 8th of August no new case or death was reported.

Medical men differed in opinion as to the character of the disease from its commencement until its termination. Some contending that it was the yellow fever, strictly so called, others, that it was the common remittent fever incident to the city, and that it had become epidemical without a change of character.

After the 8th of August, a few scattering and more distant cases alarmed the citizens in the vicinity of Rector-street, and within a few days, all that part of the city between Trinity church and the Battery, and between Broadway and the North River was nearly deserted.

That section of the city was now called the infected district and every case of bilious remittent fever which came to the knowledge of the Board of health, from any part of the city, the subject of which could be traced to, or had been exposed within the infected district, within eight days from its attack, was generally deemed a case of yellow fever.

Between the 20th and 30th of August, a few cases occurred in Wall, New, and Broad-streets. This excited an apprehension that the disease was spreading, and rendered it expedient for the public offices to remove from Wall street; these were followed by all the merchants and shop keepers from the lower part of the city, who all located in Greenwich Village at the state prison, a distance of two miles, on the North River.

By the middle of September all that part of the city between Fulton-street and the Battery, from river to river, was nearly deserted by the inhabitants, and by the 1st of October, there was not a store or shop open, and but few private houses occupied below, or south of the City Hall. During this period, there were about 150 persons in public and private employ, constantly on duty in every part of the infected district, constituting a day and night watch, lamp lighters &c: besides these, hardly a human being was seen for many weeks in this part of the city, except here and there a physician whose humanity prompted him in the face of danger to do his duty.

In the month of September, the Board of health were furnished with a variety of essays on the mode of preventing the further progress of the contagion, if not to effect the entire destruction of it, in its existent state. Covering the infected district with a body of ice, with lime, with charcoal, with lime and tan combined by fumigation, &c. &c. were severally proposed by a number of physicians. The Board finally adopted the project of covering the streets, burying grounds &c. with lime, charcoal, and tanner's bark. Notwithstanding this measure was faithfully executed, the disease continued increasing and progressing, and unfortunately no good appeared to result from the experiment.

On the 15th September, a case of fever of a suspicious character was reported to the Board from No. 4 Lombardy street. This case was decidedly pronounced to be Yellow Fever. It could not be traced below its number, which was a mile above the original infected district. This consequently created a new infected district. The Board of health recommended a removal of the citizens, and the neighbourhood to a considerable extent, was accordingly soon deserted.

All that part of the city west of Chatham-street and the Bowery, and north of the City-Hall, continued remarkably

healthy; a few cases had occurred, but no official notice was taken of them. There were some Physicians who declined reporting cases altogether, justifying themselves on the principal that the disease was not contagious, or yellow fever.

It does not appear that a single case originated in the Village of Greenwich, although crowded to inconvenience with inhabitants, and the receptacle of a number of cases which proved fatal.

Of all the cases reported during the first two months, about two thirds died; the proportion lessened towards the decline of the disease.

The number of cases officially reported during the whole season was 411, of whom 230 died.

The medical faculty were not much divided on the mode of treatment in this disease.

With few exceptions they considered emetics wholly inadmissible. It was attempted to soothe the nauseating stomach into a disposition to receive and retain cathartic, antiseptic and sudorific medicines.

The pains of the head and chest were met at their respective seats of action by local irritants, and fomentations, or depletions by cupping and leeches. Where the stomach rejected medicines, injections and external remedies were mainly relied on for relief or cure.

Thus far is a general view of the history of our late epidemic. My observations on its nature, medical treatment, &c. are comprehended in the following reply to a letter of queries written by Doctor Stevens.

New-York December, 1822.

To Alexander H. Stevens, M. D. Chairman of a Committee appointed by the Physico-Medical Society "to investigate the origin, nature, and medical treatment of the Epidemic Fever of the present season." &c. &c.

Sir,

In reply to your queries on the subject of the late Epidemic Fever of this city, I submit the following answers and remarks.

To your 1st query, whether "any, and if any, what facts have come to your knowledge which tend to shew either the domestic or foreign origin of the late epidemic?" I answer, that no facts have come to my knowledge to create, much less to justify a suspicion that this disease was of foreign origin. On the contrary, I infer the domestic origin of it from its identity with cases of Bilious malignant fever which, in the course of my practice, I have repeatedly witnessed in the city of Albany and its vicinity, my former place of residence. Its symptoms, progress, and termination, were familiar to me; and, with the exception of an effusion in the lungs, which is no uncommon attendant of malignant fevers, it bears a near resemblance, though with less severity of first symptoms, to the epidemic fever which prevailed with so much mortality, and to so great an extent, in the northern and western parts of this state in the winter of 1812 & 13.

2nd. "What were the symptoms, progress, and termination, of the disease, as it fell under your observation; and in what respects, if in any, did it differ from the violent forms of the ordinary bilious remittent fevers of our climate?"

The first symptoms, as they occurred under my observation I shall endeavour to describe. The "progress and termination" depended so much on the *treatment*, that I shall notice them under the head of your 4th query.

First, general symptoms.

Chills of no extraordinary character, pain in the forehead, particularly over the eye balls, in the occiput, loins and extremities: vertigo, great prostration of strength, slight *suffusion* of the eyes, with a dull heavy and languid

look, sallow complexion of countenance, coma, restlessness, extreme pain or distress at the precordia, nausea, vomiting.

On the second or third day the

Eye became tinged with a yellow hue, and its vessels somewhat turgid.

Tongue moist, but slightly covered over its middle with white fur, which became of a brown or chocolate colour on the third day.

Skin was various; in some preternaturally warm, in others of a natural temperature, or below it, generally dry and husky. On the 3d and 4th days it assumed a yellowish hue about the face and neck.

Stomach irritable, in many cases disposed to nausea, retching, or incessant vomiting. In some it remained undisturbed and apparently torpid.

Bowels constipated or torpid, but became quite soluble after the operation of an emetic.

Pulse generally from ninety to one hundred and eight in the minute, small, weak and yielding.

Secretions from the stomach were either a thick white viscid phlegm, or a discoloured, loose, limpid liquor, in greater or less quantities. But this organ most generally ejected.

Excretions of bilious matter, either green, yellow, brown, or nearly black, and in most cases *inodorous*.

The excretions from the bowels were of the same character as those from the stomach, and appeared to differ only from their mixture with drinks, medicine, or the common contents of the intestines. The discharges were copious, and *more or less offensive* according to the nature of those contents.

I have repeatedly seen discharges of a peculiar appearance on the 4th and 5th days—a *limpid* stool with a carbonaceous sediment; this sediment was of a blackish or brown colour, but not so gritty to the touch as its appearance would

indicate. It was always in a small quantity, from a tea spoonful to a table spoonful, and without smell.

This disease "differs from the violent forms of the ordinary bilious remittent fevers of our climate," in having a more than ordinary tendency to a typhous state.

The type of this disease seems so nearly connected with the violent form of our ordinary bilious remittents, and the milder form of the typhus *icterodes*, or yellow fever of the tropics, that it may not unaptly be considered a connecting link between them. It is Doctor Jackson's second species of yellow fever, which he says, "frequently makes its appearance among people newly arrived in hot countries, and which, from some striking marks of affinity, he had been induced to rank as a species or variety of the yellow fever of Jamaica." His account of that species of fever corresponds so well with our late epidemic, that I beg leave to refer to it in his treatise on the fevers of Jamaica, chapter 11, section 2.

To your 3d query, "Was the disease in any case whatever that came under your observations, propagated from one person to another, either directly, or through the medium of *Fomites*, which had not been exposed to the infected atmosphere ?" I answer no.

Query 4th. "What plan or plans of treatment did you pursue or witness, and what were the results ?"

I stated in my answer to the 2d query, that the *progress* and *termination* of this disease depended so much on the treatment, that I should notice them under the head of the 4th query.

In my plan of treatment there could be no such thing as a natural progress of symptoms. They were mostly checked in their forming state.

My treatment was as follows.—In every case I commenced with an emetic of the tartarized antimony. This operated successfully in all except one, out of seventeen *decided*

cases that came under my care. I followed this prescription with small and repeated doses of calomel, to keep the bowels open. If the calomel did not operate as freely as I wished it, I gave an infusion of senna leaves and manna, with Epsom salts; with this I could always command the bowels. In cases where the patient appeared sinking under the influence of the disease notwithstanding these evacuations, I gave from one to two drachms of the muriatic acid, diluted in a quart of water, in the course of 24 hours, with evident beneficial effect.

When no disposition to perspiration occurred after the emetic, on the first day, I did not attempt to excite it by sudorifics. It did generally show itself after the first emetic, and I then encouraged it with hot lemonade.

I found, by giving an emetic on the first instance that I invariably relieved the pain in the head and removed the distress at the precordia, and as often as these symptoms recurred, which they usually did within twelve hours after the first vomiting, I repeated it, and continued from day to day repeating it, till those symptoms entirely subsided. When the pain in the head was extremely acute, I relieved it by applying ice over the forehead; and if an uneasy sensation continued at the stomach, I suffered the patient to take a small piece of it in his mouth, to chew and swallow, which produced the desired relief.

In cases of nausea or *incessant* vomiting, I pursued the following course to obtain the *full effect of an emetic*, which was all I desired, in order to proceed with confidence in the cure. and dissolved 18 grains of emetic tartar in half a pint of water, I directed my patient to take a table spoonful of this solution *immediately after each time of retching or vomiting;* I soon was enabled to keep enough down to excite an *antimonial* action, and the invariable consequence was longer intermissions in vomiting, till it ceased entirely, which

it did, within from one, to three hours. After the stomach became thus quite calm, I gave a *full dose* of the emetic with the intention more fully to empty the biliary ducts ; this was succeeded by ejections from the stomach of large quantities of dark coloured bilious matter, and frequent copious and repeated discharges of black fetid matter from the intestines.

After the discharges from the bowels, produced by the emetic, had ceased, I gave 3 grains of calomel every two or three hours to continue the evacuation of the retained, or forming excretions from the liver and biliary ducts. I have said, that I repeated the emetic as often as the pain in head increased, or the distress at the precordia returned. These symptoms frequently recurred on the 2d, 3d, & 4th, day, and sometimes on the 6th, and as frequently were they completely subdued by the repetion of an emetic. My patients took from 3 to 5 of them during the disease. No other symptoms of consequence supervened under this plan of treatment, except the threatening recurrence of the first symptoms.

After the third day the eyes and skin became of a dull yellow in a greater or less degree. I remarked that the severer the attack, the sooner was the recovery, and the milder the first symptoms, the more apt they were to continue increasing till the third day, and the patient was then a longer time in recovering his health. The former class of cases did not become so yellow as the latter.

This was my " plan of treatment," this the " progress of the disease."

The " termination" of this disease, under my observation, was favourable in every case except *two*. The one, although attacked with the usual symptoms, apprehended it to be nothing but a common cold, and submitted to the usual domestic treatment till the 3d, day when I first saw him. He had

been sick at the stomach, and vomited, and now the nausea had ceased. I gave him an emetic without effect, and repeated it without producing any other result than an active and copious discharge from his bowels. I continued these discharges by giving him repeated doses of calomel combined with antimony; he sweated freely, and I kept a perfect command over his skin and bowels till the 5th, day, when he died.

The other patient was convalescent and doing well on the 9th, day. On that day he rode without fatigue a distance of two miles, to Greenwich, preparatory to his sailing for Albany. Four days afterwards I was surprised on receiving a message to visit this patient at Greenwich, where he had been waiting to obtain a passage up the river; he had not in four days taken any of the laxative medicines I had directed. I found him with a pulse at 126 in the minute, a dry, hard, and black tongue, bleeding at the gums, &c. He died on the 20th, day from his first attack.

REMARKS.

I have learned, that many of our Physicians in accordance with the opinions of authors on the yellow fever of the West Indies, *were averse to giving emetics* in the late epidemic; and that their reasons were founded on the extreme irritability of the stomach, which they were apprehensive of increasing by the medicine.

Their treatment was directed to allay this irritability by saline and other anti-emetic prescriptions, blisters &c. to enable the stomach to retain purgative medicine.

All this may have been proper, and consonant to their doctrine, while they thought that organ primarily effected. For my part, I took a different view of the subject, and considered the stomach at the commencement of the disease *always* secondarily or sympathetically affected, and I believe

my practice has proved my reasoning correct. Call the late epidemic, Yellow Fever, or by whatever name you please, it is universally conceded to be a *bilious fever.* Without looking for a remote or predisposing cause, and you might as well search for the remote or predisposing cause of meazles, scarlatina, whooping cough, influenza, or dysentery, when they are epidemical; let us at once consider its more immediate or proximate cause.

It is an inordinate and morbid or unhealthy secretion of bile in the liver. Medical authority states that there are "two species of this matter secreted, the one yellow, bitter and very irritating; the other livid and blackish, and, in a great measure, *inert*, until it has obtained a disposition to putrefaction." The least portion of the former, when thrown into the stomach by an inverted action of the *Duodenum*, occasions nausea and head ach from *consent* of parts. The latter, by becoming acrid and "verging to a state of putrefaction," hastens the corruption of the human fluids, and, from its long retention, excites an insufferable degree of pain and distress at the pit of the *stomach.* This state of the *hepatic* system is evidently induced by a vitiated state of the blood, which will generate morbid and acrimonious fluids, and consequently produce weak solids.

That the liver should be the vehicle of this mass of diseased secretion is readily inferrible from its reception of so immense a quantity of blood from the principal viscera through the medium of that important vessel, the Vena Portæ, whose branches have no valves. Doctor Stahl not inaptly called it the *porta malarum.* This morbid secretion then, according to its nature and the state of the system, acts on it, either by inducing strong arterial action, indicating a *synochal* or inflammatory state of fever, or, by prostrating the powers of life by its tending to putridity, induces that state of fever called, putrid, malignant, or pestilential.

The first state of these fevers is not considered so dangerous or of such a fatal character as the last. In it the "vis medicatrix naturæ" or conservative power of life, is greater, stronger, and more resistible, and is almost sufficient in itself to counteract its destructive tendency ,while in the malignant or pestilential form, nature seems to sink at once, and needs the most powerful aids of the materia medica to sustain sufficient vital energy to prevent dissolution.

It was in the latter shape that the epidemic in question exhibited itself, and led me to believe that the removal of the offending matter from its lodgement, was the most proper and rational effort to arrest its progress and perform a cure.

Nor could I imagine upon what principle of medical philosophy blisters should be applied over the region of the stomach, leeches to the breast and sides, or cupping and leeches to the temples to relieve pain or obviate dangerous *congestions*, while these *affections* were evidently symptomatic and were caused by the irritating nature of the *hepatic* secretions.

The facts and reasonings I have adopted on this subject are supported by the authority of authors, classed among the best medical writers.

It is, however, unnecessary to appeal to authorities where your own reason and experience may decide a question. I have no need to appeal to any authority to prove to me that antimony will vomit, and that calomel will purge; and as little necessity is there to call for authority to prove the existence of unhealthy bile in bilious fever, and the necessity of removing it, in the easiest, most certain, and expeditious manner. This I shall continue to do by emetics, until some milder but equally efficacious substitute shall be found.

Cathartics, (unless they previously operate emetically) will not serve while there is much irritability of the stomach, and a correspondent torpor of the intestines. Neither can

a cathartic exert its influence beyond the intestinal canal on the biliary ducts when disease has engorged them with unhealthy bile; and when an indirect state of debility has suspended their natural functions.

The removal of bilious matter is not the only benefit to be derived from an emetic. There is no other class of medicines that so effectually and so certainly can rouse a torpid system into action. No secretory organ escapes its influence. Nor is the effect of vomiting, as is generally supposed, *debility*—but that species of exhaustion which arises from fatigue. I have for so many years prescribed them in fevers of every grade, and in all stages, and without ever meeting with any accident from them, that I feel as much confidence in their safety as I do in their efficacy.

It is surprising how readily our Physicians have adopted the opinion of some writers on the Fevers of the West Indies in denouncing emetics.

Experience will not justify this prejudice.—It is founded on a false theory. Chisholm was once a strong advocate in their favour, but his *theory* warped his judgment, and he thought he had found a substitute more consonant to his later ideas on the subject. I shall quote him, when he judges from *facts*. In the article in which he speaks of the "means of cure employed in the treatment of the malignant pestilential, and yellow remittent fevers," he remaks, "From the foregoing data the following indications naturally resulted, and have always since guided me in my practice; for however varied the remedies may have been, still these were the points to be gained.

"1. To discharge from the stomach and intestines, acrid and offensive humours.

"2. To counteract the morbid action of the poison of the remote cause.

"3. To restore tone and energy to the system."

Under the head of " the first indication" he says " in every disease in which there is a bilious accumulation in the first passages, I have generally used a solution of the vitriolated natron and *tartarized antimony*, in water, in preference to any other evacuating medicine. It possesses the singular advantage of effecting three evacuations (vomiting, purging and sweating) in a very short space of time ; and although *a powerful emetic*, it by no means occasions any untoward irritability of stomach. In the present instance I had recourse to this *excellent remedy*, and gave it in the following manner. An ounce and an half of the salt, and two grains of the tartarized antimony, being dissolved in a pound and a half of pure cold water, a large wine glass full of the solution was given every hour to the patient, until a sufficient effect was produced, or until the whole of the quantity was taken.— The two first glassfuls generally operated as an emetic, and fully evacuated the stomach; the medicine after this acted on the intestines, and excited a copious discharge of their contents. In several cases of the third class, and a very few of the second, in which my assistance was called for early in the fever, I had the satisfaction of seeing a speedy and complete termination put to the complaint by the *solution*. This indeed was doing what has been recommended by Sir John Pringle, preventing the disease, or rather carrying off its fomites, before they can enter and act generally on the systems," &c.

Chisholm on Pestilential fever.

Rev. Dr. Townsend, speaking of Pestilential fever, says, " Dr. Gardiner thinks, and I perfectly agree with him, that contagion, whether marsh or human, is taken by the saliva into the stomach, and may be instantly ejected by emetics. The experience of numberless practitioners confirms this idea. Agreeable to this, Baron Ash and the most successful

practitioners in pestilential fever, begin their operations by cleansing the alimentary canal.

The following is their plan of cure.

1. They administer *emetics*. And for this purpose they prescribe Ipecacuanha half a dram, tartarized antimony one grain, with one scruple of vitriolated tartar for a dose. This emetic they work off with acidulated drinks; and should the nausea with bitter tase remain after the administration of the first emetic, they give a *second*, a *third*, or even a *fourth*, in the space of *twelve hours*.

And it is highly worthy of our notice, as applying equally to Typhus, that emetics are not subject to the same objection as brisk purges, which a man in the plague is unable to support. When the infected have dropped down suddenly, as if shot with a musket ball, they have been perfectly restored *by one emetic*, and returned to duty within four and twenty hours from the first stroke of infection."—*Guide to health, p.* 60.

Dr. Reece in his "Medical Guide," observes that "in the treatment of fevers, emetics are the most powerful instruments, perhaps, the Materia Medica affords. They not only cleanse the alimentary canal, but tend to remove visceral obstruction, by exciting the action of the absorbent vessels; they emulge the biliary ducts, occasion an equality of circulation throughout the system, and induce perspiration; hence, by carrying off offensive matter from the stomach and intestines, and at the same time producing so many healthy actions in the system, they often speedily terminate inflammatory fevers."

Dr. Pringle, in his observations on Bilious fevers "observed that Vomits were still more efficacious in the Marshes than in the Camp; insomuch that when a large quantity of bile was evacuated by an emetic, the fever would often be removed at once. But this was not to be obtained by Ipe-

cacuanha alone, which I have seen have a contrary effect, in making the subsequent paroxysms longer and more violent than the preceeding &c. : for this reason I added two grains of emetic tartar." In the same author's "observations on the Jail or Hospital fever," he further remarks :—"In autumn 1757, when our troops returned from the expedition to the *Rade de Basque*, several of the soldiers were brought into the hospital at Portsmouth ill of a disorder compounded of *the Bilious and Jail fever*. For when those men, upon being seized with the common fever of the season, were confined to the holds of the *crouded ships*, their distemper put on a *malignant form*. All those who were not in the low state, but complained much of a head-ach, of costiveness and a disorder at the stomach, I first bled, then purged ; and afterwards proceeded with them in the manner described in the cure of the bilious fever, I gave them twice a day a grain of emetic tartar, which commonly not only puked, and opened the body, but brought on a diaphoresis All those who were treated in this manner recovered."

Dr. Prichard gives a history of an Epidemic which prevailed at St. Peter's Hospital, and the British Infirmary, in 1817—18—19. This fever was marked with "depressed vital action." The cold stage was frequently protracted many days, "without any appearance of reaction." In order to produce a reaction the warm bath was resorted to and mainly depended on. The Doctor says, that "in general there was enough strength remaining to sustain without peril, the action of *vomiting*. When this appeared to be the state of the patient, a gentle emetic dose was given to him as soon as he came out of the warm bath, consisting of the powder of Ipecacuanha, with or without an addition of tartarized antimony. By these means the powers of life were generally roused, and the hot stage brought on, often in a mitigated form. In a few cases the emetic cut short the complaint."

It is generally supposed that this disease originated in Rector-street and its vicinity, and the *time* of its first appearance from the 12th to the 18th July. Upon investigation, these assumed facts will be found incorrect. Deaths from bilious remittent fevers were common for several weeks before the above period, in the upper part of the city, particularly in the Bowery, Pump, Hester, Cheapside and Bancker Streets; but the want of an "infected district" saved the character of the disease, perhaps very *unjustly* from the appalling term of *Yellow Fever!* If I have been correctly informed, a Mr. B. died of the same disease in Water-street, between Coenties and Old-slips, and a Mr. S. of the same neighbourhood, both several days before the appearances of the Rector-street cases. I am certain of one case which came under my own care at No. 43 Water-street. The subject was a merchant from the western part of this state—he was attacked a few days after his arrival in the city, viz: on the 17th June. I was so well convinced of the character of his disease on the second day of the attack, that my report, and that of the keeper of the boarding-house, were prepared for communication to the Board of Health, but upon reflection I deemed it inexpedient to make a formal report of the case. I was aware of the *effect* that a report of a case of "Bilious malignant fever," would have on the citizens, especially in the neighbourhood of *Old-slip*. Influenced by this consideration, and the hope, that it might prove a solitary case, the patient was removed to Greenwich near Spring Street, where his disease terminated favourably after the 9th day. This case was so distinctly and strongly marked with the most indubitable symptoms of the subsequent epidemic, and so clearly supported its character throughout its progressive stages, that the *particulars* and *proofs* shall be furnished if it should be deemed important to investigate it farther.

If the late Epidemic was, as is generally believed, the

genuine Yellow Fever, I am happy to find that it is less formidable than I had apprehended from reading its history.

I have seen cases of the Yellow Fever in every season when that disease prevailed in this city, from the year 1798 inclusive. The constant commercial intercourse between this city and the city of Albany, always furnished some cases for the latter place. And unless a change of place while under its influence alters the appearance of the disease, the Yellow Fever of former years and of this year differ in a considerable degree.

I have seen two or three cases of the late fever which bore the strongest external marks of the Yellow Fever. The most remarkable of these was Mrs. Snow, at No. 4 Lombardy-street. In this case, as well as in the others, there had been neither spontaneous nor artificial evacuations of the contents of the stomach or bowels at the commencement, and little if any during the progress of the disease. I consequently attributed the peculiar type or grade of it in these cases, as I would in all others of a similar nature, to the *retention of bilious matter* exerting its undisturbed influence on the system.

It would not be an unjustifiable conclusion to believe that those appearances would occur in a common case of bilious remittent fever under a torpid state of the stomach and intestines, were they not forced into action by medicine. But we may always expect to see them in autumnal fevers of a malignant tendency, where the bile has not been, or cannot be effectually dislodged.

Of the late Epidemic, I can state with moral certainty *that it was not contagious*, even in the supposed infected district. I should not dare to speak so decidedly of the West India Yellow Fever.

My experience and observation forbid me from drawing a conclusion for or against its foreign or domestic origin.—

There has been so much positive alleged proof on one side, and negative proof on the other, and both sides supported by such respectable authority, that a mere reader as it were on the subject, should draw no hasty conclusion. My prevailing opinion is, that the Yellow fever may be of domestic origin; but I am as yet, far from believing that it cannot be *imported.*

A Summary of the New Medical Doctrine of Italy, delivered as an Introductory Lecture to a course of Clinical Instruction in the University of Bologna in the year 1816—*By* M. Tommasini, *Professor. Translated from the French of* Vanderlinden.

I. In order to guide advantageously your first steps in the difficult art of Medical practice, it has appeared to me necessary, beloved students, before entering on the consideration of the diagnosis and treatment of disease, to exhibit to you a syllabic view of the inductions, and general truths, which are the results of the observations of preceding ages; and which, under different expressions, have always constituted the solid foundations of our art(1). You have, I hope, derived some advantage from my lectures of last year on diathesis(2), which formed a part of my clinical course of instruction.—My manner of viewing diseases has in some measure become yours, as well as my language and method: you are now able to follow me with facility; sometimes even to anticipate me in the application of the most important principles which I have been enabled to establish, only after the observation

of many years. It is proper that I should now complete the task I have undertaken, as you must by this time be sufficiently prepared to listen with profit to more profound discussions of pathological questions. I shall endeavour to lay before you on the present occasion, chiefly with a regard to their practical bearing, a plain exposition of the most important principles of our art, and which influence in the greatest degree the opinions and conduct of physicians in the exercise of their profession. I shall more particularly call your attention to those points of doctrine and practice which distinguish the medicine of the present time, at least in Italy, from that of preceding periods, and which lead practitioners to adopt a new mode of treating diseases. It appears to me proper that the more advanced among you, before quitting this celebrated University should become thoroughly acquainted with a doctrine which has excited such general interest, and given rise to such animated discussion: it is also proper that you should justly appreciate the importance and practical consequences of maxims which the censure of the ignorant, or the prejudice of opinion, have often exhibited in a suspected light to the eyes of the multitude.

II. The new medical doctrine (for that assemblage of pathological ideas and particular views which are daily becoming more prevalent may well be denominated *new*.) The new doctine, I say, forms an epoch in the history of medicine, and will without doubt occupy a distinct place. It is the offspring of Solidism and Brunonism, but is nevertheless more simple than the doctrines taught by Hoffman, Baglivi and Cullen: for it is divested of numerous assumptions and futile questions, which for a long time excited keen and animated discussions among the disciples of these great men, and which, by engaging them in the investigation of obscure causes, diverted them from the more sober study of effects, and the application of that plain system of induction which can alone

constitute the solid foundation of the science of medicine. The *new* doctrine is better calculated than that of Brown to inspire confidence at the bedside, because it pursues more closely the methods of treating diseases inculcated by the ancients and now generally adopted; admits no abstract suppositions; and, finally, because formed in hospitals, rather than from the meditations of the study, it rejects many evidently gross errors which the pride of system maintained against the most common observations. I am nevertheless very far from denying that the more general principles of Brown's doctrine are deduced from facts; such as his primary principles of vitality and his first and simple division of diseases.(4) But these principles for this very reason have been engrafted in the new doctrine, where they form so essential a part, that I have declared it to be the offspring of Brunonism, and regarded it as such. And, for the same reason I believe it to be able to withstand the vicissitudes to which its parent has been subjected; for by adopting those principles only which are certain and demonstrable, the mere expression of facts, it must necessarily resist the fluctuations of language as well as every attempt at innovasion. The new doctrine in a word, is supported by a multitude of facts and observations, as well ancient as modern; it receives confirmation from certain ancient modes of treatment and even from the extraordinary success that in some instances has followed the efforts of empiricism, and over which the Brunonians have endeavored to throw the veil of forgetfulness, in the persuasion that their admission was hazardous to their doctrine.

III. In my lectures, which according to my plan, will this year precede the elucidation of individual diseases, you will find successively expounded, the practical lessons and principal maxims of the new doctrine of which we are discoursing. In the mean time, I shall on the present occasion point out in what it rigorously consists; in what manner, as it has

from time to time been viewed more extensively, it has vanquished the objections that have been brought against it; and how it is progressively and rapidly extending its influence and empire both by the perusal of works treating professedly on it, and the irresistible force of truth as exhibited in the beneficial results obtained from its practical application. I feel besides particularly interested to show to what nation belongs the glory of establishing this new system of medical science; for all who are animated with the love of country must cherish with satisfaction the conviction that an art so useful as ours, is indebted to it, for such signal advancement and such an important accession of knoweldge.*

* Tommasini is mistaken in believing that the *new* doctrine belongs to Italy—excepting it be some of its minor principles; its doctrine of irritation; and that part of it which attributes contra-stimulant, sedative or depressing properties to a numerous class of remedial agents; which agents had heretofore been considered as possessing stimulant powers variously modified and distributed into different classes, according as they were judged to act more especially on particular organs and tissues of the body, and to possess specific powers, such as, cathartics, diuretics, tonics, &c. This new principle in therapeutics, is precisely that part of the new doctrine which is most problematical, and requires further investigation, and the most scrutinizing and patient observation, to establish: it may be that the diffusive and loose manner of viewing diseases, and the modus agendi of remedies which was so prevalent in former times, (for there is evidently a marked improvement in this respect in the medical productions of the last ten years,) dictated, in some instances, by the exclusive spirit of system, and in others, favoured by credulity and indolence, the natural consequence of veneration for the dicta of the schools; may have been inadequate to show the fallacy of the magisterial explanation of the action of remedial agents, which, with few exceptions and little variation, has been handed down from age to age:—For these reasons, therefore, the Italian therapeutics claim a critical examination, in order that we may ascertain with greater exactness than has heretofore been done, the properties of a numerous list of remedies that for ages have been constantly employed in the treatment of diseases:—With these exceptions then, all else is *American*; for our immortal countryman, Rush, whilst yet Italy was deluded and spell-bound by the specious and most fatal errors of Brown's system; France, implicitly following the expectant system of the ancients; and England was enthralled by nosological systems, and sought to comprehend and treat metaphysical abstractions, rather than to note distinctive marks of the le-

IV. The medical doctrine which is designated by the term *new*, owes its origin principally to the fall of the two idols of Brunonism, which were universally venerated as truth even to the last year of the past century, viz.

1. The identity of the action of every positive power applied to the living fibre, which, according to the precepts of Brown, were all more or less stimulant.

2. Feebleness or diminution of excitement from excess of stimulus. called by the Scotch reformers *indirect debility*, considered as the cause of the greatest number of diseases.

The discovery of the principles of contra-stimulus has overturned the first of these two supports of Brown's doctrine; and the second has been subverted by showing the very great preponderance that diseases from excess of stimulus bear, over those that arise from its deficiency. What greatly contributed to the destruction of these two idols and the establishment of the new principles, was, if I mistake not, the doctrine of the invariable sthenic character of inflammation, or to express myself in plainer language, the knowledge that it consisted always in an excess of stimulus both as cause and effect; which is directly opposed to Brown's principles,as they not only admited asthenic inflammations, but referred a great number of inflammations, chiefly those of a chronic and obscure character, to defect of stimulus,or to indirect debility.(2)

sions of each organ and tissue, and to vary the treatment according to the state of the system; Rush, we say, with the true inspiration of genius,aided by the fascinations of a powerful eloquence, boldly inveighed against the evils of nosology; advocated the physiological part of Brown's system, modified as it is here modified in the *new doctrine*, with the rejection of the doctrine of indirect debility; and taught the doctrine of the unity of disease, its general sthenic and local character, and that the treatment in almost all cases consisted in the employment of depletory means. What is all this but the very essential part of the doctrine now making such rapid progress in the different schools of Europe, somewhat altered no doubt in each, but still bearing the stamp and character of its original promulgator?

The preponderance of diseases of stimulus over those of an opposite character, is still further confirmed by showing that the greatest number of diseases, and fevers are to be attributed to some inflammation, acute or chronic, apparent or hidden ; but never differing in its nature.

The investigations which have been made relative to certain hidden agents which facts prove to exist, and which derive even from a state of contra-stimulus, itself by means of the vital energy, a source of excessive stimulus; and produce in the midst of a marked condition of great vital depression a train of inflammatory symptoms : these investigations, I say, will serve perhaps, on the one hand to account for certain phenomena which have attracted the attention of ancient and modern writers, and on the other, they will confirm what has been said above, of the very great preponderance of the diathesis of excessive stimulus over the opposite condition. A more profound consideration of the nature of pain, by showing that it depends on a state of contra-stimulus, will probably furnish the explication of many of the phenomena and contra-indications, that now occur in the progress of disease. And more correct notions of the nature of diathesis,(7) or what has been usually designated by that term, more impartially deduced from facts, and agreeing with them better, will also contribute to this modern reform. In the mean time the important distinction which has been made, of diseases arising from excess or defect of stimulus, from those which proceed from a simple disorder of parts, or from irritation, perceptibly tends to the advancement of the new medical doctrine ; and the *theory of irritation* reduced to its real value will contribute without doubt to the progress of this new medical philosophy.

V. Although the doctrine of contra-stimulus has never been treated as a system by its celebrated inventor, John Rasori, and consequently is not yet perfectly understood in all its re-

lations, nevertheless, he has so clearly indicated its characteristic traits ; they have been so well developed in the writings of others ; and for a long time daily submitted to practical illustration in the public hospitals, in the presence of numerous students ; that we can at any rate regard its practical precepts as well understood : which is precisely of most importance for us fully to comprehend.

The following is a succinct statement of its leading principles.

1. That many substances exert an action on the living fibre diametricallv opposed to a stimulant action, and produce on the excitability immediate effects, which Brown attributed to the action of negative powers alone, and to the diminution of stimulants.

2. That these substances, for that reason called contra-stimulants, destroy the effects of excessive stimulus, even without producing evacuations ; and that if we apply them when not called for, or in excess, they produce diseases which can only be overcome by augmenting the stimulants.

3d. That contra-stimulants, as well as venesection and purgatives, afford the means of curing every condition or morbid phenomenon, which depends on excess, or the diathesis of stimulus ; and that conversely, stimulants are the remedies for a state of contra-stimulus.

4. That the fibre can bear larger doses of contra-stimulant, or stimulant substances in proportion as the diathesis of stimulus, or contra stimulus is stronger.

5. Finally, that this capacity to bear their operation (*tolerance*)* affords us a better indication of the force of the diathesis, than the symptoms.

* The word toleranza is used in the Italian language to express the faculty which the system possesses of bearing a greater or less dose of medicines in proportion to the degree or violence of the disease. If, for example, a patient labouring under acute pneumonia bears twenty or thirty grains of tartar emetic

Such are the principles of this doctrine which have been known for many years, been embraced by many physicians, and are daily becoming more popular: they are leading principles which a great number of physicians have applied with more or less rigour to the discrimination of noxious powers and diseases, to the classification of remedies, and to instituting a system of therapeutics; and they are such I believe as will always be found conformable to the original ideas of their illustrious inventor. For, whether the spirit of the doctrine of contra-stimulus shall be acknowledged to be fully comprised in these principles, or they shall be thought to constitute only a part of it, it will be always in them, that the numerous partisans of the new doctrine will be found to agree with those of its illustrious inventor. They all agree to attribute an analogous action to aconitum, digitalis, tartarised antimony &c. to purgatives, cold, and bloodletting, and to treat with antimony, aconitum, digitalis &c. that morbid state which Brown treated only by blood letting, purgatives and cold. (8)*

without producing vomiting, he is said to tolerate this dose; but if any dose however small vomits him he is said not to tolerate it. These expressions are rendered literally in order to avoid periphrase.

* The theory of contra-stimulus is that part of the Italian doctrine in which it differs the most from that of Dr Broussais. For although Broussais has said in examining Brown's doctrine that we must admit the principle of Rasori, and that, undoubtedly, a number of agents diminish the intensity of the vital properties in the animated body; nevertheless in reading the rest of his work we perceive that he still retains the principle of Brown, that every agent stimulates more or less, with a very few exceptions which are conditional. In examining the new Italian doctrine, he declares that there does not exist any absolute contra-stimulants; that the most part of the contra-stimulants are violent stimulants, even those whose action has been the best investigated in Italy; and as he cannot deny the good effects that have been obtained from their use in the phlegmasiæ he explains them on the principle of revulsion. But all which Boussais has said, does not destroy the numerous and incontestable facts which the Italians have brought to the support of their theory. If emetics for

6. But the discovery of the powers of contra-stimulus is not alone sufficient to destroy the pernicious maxims derived from some of Brown's precepts. It may be admitted that digitalis and tartar emetic will cure diseases which depend on excess of stimulus, and at the same time be contended with Brown, that in a very large number of cases, the excess of stimulants carried to a certain point, throws the living fibre into a state of feebleness, indirect it is true, but still in a condition which requires the use of stimulants, such as wine and

example are stimulant as Broussais pretends, how happens it that their employment is not advantageous and useful in cases where the most certain stimulants, as opium, wine &c. are advantageously resorted to? and why, on the contrary, is it proper to adminster them in cases when these last are evidently hurtful? How can be explained on the doctrine of revulsion the numerous recoveries from typhus and pneumonia treated by Rasori, and since, by a great number of Italian physicians, with large doses of tartarised antimony, often without taking an ounce of blood, and without the medicine producing any evacuation, or at least any at all proportioned to the advantages which had been obtained from it? Can we explain on the principle of revulsion, the great benefit which Dr. Vasani obtained in the contagious ophthalmy of Ancona, from tartarised antimony in lotion? If antimony be stimulant, how comes it, that patients bear larger doses of it without causing evacuations, in proportion as the phlegmasiæ is violent; and that a grain of tartarised antimony is sufficient towards the decline of a disease to produce vomiting, whilst in its acmé the patient will bear twenty four to thirty grains a day without vomiting, and often even without producing nausea? I think therefore, before rejecting the theory of the Italians, it is proper that we should critically examine the facts they bring to its support, which have been substantiated by a multitude of observations. In order to prove that contra-stimulants are really stimulants, it is necessary to shew; 1o. that their action is similar to that of the most evident stimulants, such as wine, opium, alcohol, &c; and that far from diminishing or lessening their effects, they add to them; 2o. that they are opposed in their action to bleeding and other unequivocal debilitating means, and that instead of increasing the effects of such means, they counteract their consequences; in fine, that they are always hurtful in diseases of excess of stimulus, and beneficial in those of contra-stimulus; and that they are capable, when applied without necessity, or beyond need, of producing diseases which are cured by bleeding and other debilitants. But it is necessary at the same time to distinguish the instances where these substances exert a local mechanical and chemical action, from those where they act

ether. This was one of the great pathological and practical maxims of Brown: for he placed among asthenic diseases (or as we call them diseases of defect of stimulus*) not only those which depend on real defect or diminution of stimulants, but a very considerable number of others which he attributed to very great excess of stimulants, producing an exhaustion of the powers, or indirect debility. He thus rendered the asthenic diathesis and the stimulant treatment very predominant: indeed, he reduced to a very small number, the diseases which consisted in excess of stimulus and required a debilitating mode of treatment. But *this need of stimulants in consequence of the abuse of stimulants*, that is to say, of *indirect debility*, is not admissible to the extent taught by Brown. It was an error to consider it as the cause of all the diseases which the Brunonians on that account regard as asthenic:

directly on the vital properties of the organs. Without being aware of this distinction we should attribute to dynamic action, what is indeed only mechanical or chemical action. Thus, because concentrated sulphuric acid produces inflammation of the mucous membrane of the stomach, we should be wrong to conclude that its dynamic action is stimulant; for the inflammation is the effect of the disorganization of the living tissue, and arises by means of a vital reaction whose mode of production is not well understood; that this is the correct explanation of the fact is rendered manifest by diluting the acid with a large quantity of water, by which its chemical action is destroyed and it becomes an excellent antiphlogistic, advantageously employed even in inflammations of the stomach.

* In the language of the new doctrine, the word *stimulus* is often employed synonymously with *vital action;* and we call *diseases of excess of stimulus* those where the vital action is augmented, and *diseases of defect of stimulus* those where it is diminished. The first are also simply called *diseases of stimulus*, and the second in contra-distinction *diseases of contra-stimulus*. These expressions are more exact than those of Brown (*sthenic and asthenic diseases*) which express only the excess or defect of powers, and not of vital action which may be greatly exalted at the same time that the powers are in the greatest state of prostration, as happens every day in acute phlegmasiæ, &c. in which the sick are *physiologically* feeble according to the expression of Tommasini, that is to say, that their functions are performed feebly and imperfectly; but they are *pathologically* strong, if we consider the energy of the vital action, which is certainly very much augmented, particularly in the parts which are the seat of the disease, and more or less also in the rest of the system.

for declaring them such, and believing them to be curable by the application of new stimulants, is to disregard the phenomena daily exhibited in disease, and the happy results obtained, in despite of Brown's principles, by the ancient physicians and their partizans, from the employment of purgatives and other antiphlogistics in these cases. The inventor of the doctrine of contra-stimulus strongly combated this error. He proved demonstratively that the use of contra-stimulant remedies dissipated many diseases which according to Brown, ought to be treated with opium and wine; and thus showed that diseases of excessive stimulus are much more numerous than those of an opposite character. The discoveryof contra-stimulus contributed to destroy this pernicious maxim, and to improve the classification of diseases; it showed that the action of many remedies which the Brunonians believed to be stimulant, is conformable to that of bleeding and of cold, and it also proved on the other side, that the diseases which were cured, and are still every day cured with these remedies, are sthenic, or of the diathesis of stimulus.

7. Although these fundamental maxims of the new doctrine have been adopted and applied to the treatment of diseases, by their authors and many of its advocates, in some of the public hospitals of Italy; nevertheless, the distinction of inflammation into sthenic and asthenic, still generally prevails: and although, in the treatment of the first kind we employ without fear contra-stimulants united to bleeding, or even alone, yet in numerous cases where the inflammation is regarded as asthenic, stimulant remedies are eagerly resorted to. With the facts in my possession, I shall not undertake to show in this place, how very fatal the prevalence of the doctrine of indirect debility, *considered as the cause of the greatest number of diseases* has been, as well as its corresponding idea of asthenic inflammation; nor the evils occasioned by the obstinate employment of stimulants in in-

flammation of the eyes, lungs, liver, peritoneum, or intestines, which were regarded as asthenic for the sole reason that they were of long duration. I will content myself at present by assuring you, as I have already said in another work (9), that from the first years of my practice, when Brown's principles were much, and universally, esteemed, the sinister effects of opium, ether, wine, and exciting mixtures in pretended asthenic inflammations, and the bad effects of the heating method in fevers called nervous, which autopsic examinations afterwards showed to be inflammations of the brain, caused me to doubt the solidity of Brown's principles. It was facts, and not theoretic reasonings which caused me to abandon them. The fortunate recoveries, on the one hand, that some old practitioners obtained by means of the evacuant and antiphlogistic treatment, (notwithstanding they were led to adopt such treatment by their humoral notions); and the ill success, on the other, which attended the stimulant treatment, induced me to make the nature of inflammation, and inflammatory diseases a particular study. It was a consequence of this study, and from an extensive observation that I declared in 1805, that every inflammation is of a sthenic nature, or, to express myself in better language, that it is always in itself an action (*processus*) of excessive stimulus. I contended that there was no reason to believe the inflammation to be asthenic, because it occurred in a feeble individual, nor to confound it with the changes or effects which it produces; since the inflammation as long as it remains such, always preserves its primitive nature (10). This point of practice is of the highest importance, and will hereafter form the subject of a distinct treatise, in which I will also examine the objections that have been raised by some writers against my opinion (11). It was also the study of inflammation which lead me to attribute to its action (*processus*) a great number of diseases which are generally consi-

dered as having no relation with inflammation: the inflammatory phenomena are not indeed always apparent at the commencement of the disease, but often remain obscure and indefined even to the time when the irreparable consequences of the inflammation are first exhibited. The same study of inflammation, supported by facts and autopsic examinations, has constrained me to place fevers amongst the phlegmasiæ, as the effect, and not the cause of the phlogistic process to which it is united (12). Inflammation, as the cause of certain fevers is demonstratively proved by examinations after death of cases occurring in tabid individuals, in child-bed women, and in cases of yellow fever and typhus; inflammations, which heretofore have been viewed as an effect of the fever, and a secondary disease. When I perceived the inflammatory character of the greater number of diseases, as well acute, as typhous, gastric and yellow fevers, &c. as chronic, as slow fevers, hectic fever; physconia, venereal, cutaneous, and glandular affections, &c. besides many other diseases generally considered as simple convulsive affections (13); and when, moreover, I observed that the inflammatory process is always similar, and consists in an excess of stimulus; then, the influence of indirect debility in the production of such diseases, in my view, and I believe in that of many others, ceased to have any weight (14); and those diseases which are really hyposthenic, and cured by stimulant treatment, were reduced to a very inconsiderable number (15.)

There is still another error in Brown's principles, presenting a specious appearance of truth. It is this: to derive the nature of the diathesis, or the character of diseases from the nature of the causes which had preceded them. Nothing indeed, is more reasonable in appearance, than to believe every disease to be hypersthenic, (to use the language of the ancients,) or of the diathesis of stimulus, which is caused by excess of stimulant powers; and, on the contrary,

to regard as hyposthenic or from contra-stimulus, those which are caused by humidity, cold, terror, and such agents. The difficulty that sometimes exists in determining the diathesis of diseases from the symptoms, would render such a principle of great use if there were no suspicion of a diathesis of stimulus, when the causes that had preceded the disease had been contra-stimulant, and vice versa. Such was indeed, the induction of Brown, and he made it in good faith. As in the course of life the greater part of men are principally exposed to the action of debilitating powers such as, privations, distress, humidity, cold, depressing passions, &c.: so, without reckoning the fertile source of asthenic diseases, which Brown attributed to indirect debility, the directly debilitating action of very many causes which produce disease, also justified the preponderance of asthenic diseases. But it is necessary to observe facts with more impartiality, for it is on facts, and not on hypothetical principles that the etiology, and classification of diseases must be grounded. A fact which opposes this theory, and renders abortive the efforts of the Brunonians to support it, is, the very great number of inflammations, as anginas, rheumatisms, pleurisies, inflammations of the brain, uterus &c. which we find to succeed to the action of cold, or humidity : since in these instances, after a rigor of greater or less duration, a violent inflammatory fever is developed which requires repeated bleeding to overcome, and that too without our being able to attribute the inflammatory fever to any intermediate or posterior stimulant causes. If deep seated inflammations of the liver, which are strongly developed by the influence of depressing mental affections, are cured by rhubarb, aloes, and acetite of potash; if the violent reaction of the arteries or arteritis, which is often the consequence of terror, threatens in its progress to produce disorganization, when it is not allayed by bloodletting; if autopsic examinations, and the advantages

of the *aperitive* treatment as it is called by the ancients, that is to say, the contra-stimulant treatment, have long ago proved the phlogistic nature of the peritonitis of lying in women, a disease which the Brunonians believed to be asthenic, on account of the long sufferings, and great loss of blood which generally precede it; if in these diseases, and many others produced, without doubt, by debilitating powers, we find nevertheless the antiphlogistic treatment indispensably necessary; and opium, and wine, on the contrary injurious: one is forced to admit from all these considerations, that debilitating causes can of themselves occasion the development of hypersthenic affections, or diseases of excess of stimulus. I have had these undisputed facts under consideration a long time, and having attentively considered them, it appears to me to result from their analysis, that we cannot with Brown always feel assured that a diathesis is hyposthenic, because the disease has been produced by a debilitating cause: but I believe we may conclude, by whatever means it is brought about, that an inflammatory process, or action, may be developed in the midst of the greatest degree of vital depression. This is the reaction of the ancients considered, not as a vis medicatrix, but the production of a morbid condition of an opposite nature to that of the causes which preceded it: the doctrines of Gaubius and Cullen have been of great service to me in examining this species of facts, and the perusal of the works of Giannini, Testa, and Monteggia, have also furnished me with many important ideas on this subject. You doubtless, will recall to mind the value I attached to these facts, in my lectures of the preceding year; the advantages which were obtained from the persevering employment of the antiphlogistic plan of treatment, and the demonstrative evidence it furnished of the truth of the principle.

IX. If it be not unusual to meet with diseases curable by antiphlogistic treatment, which have proceeded from causes which were certainly debilitating; so we likewise meet with cases, where in the midst of the diathesis of stimulus itself, during the progress of the inflammatory process, (caused either by some unequal (*disharmonique*) distention of the nerves, or pain, or some other obscure morbid state,) the animal machine becomes suddenly changed in its condition, and falls into a state of contra-stimulus, temporary it is true, but not the less evident on that account: and as long as this state continues, contra-stimulant remedies, and depletory means cannot be employed with impunity, although they had before this been used with advantage, and can be again, as soon as the inflammatory excitement is reanimated. During the intense chill of an intermitting fever, and the vomiting which accompanies it, it would be dangerous to employ bloodletting or to administer purgatives, or an emetic; although these very means are often advantageously resorted to, after the cold stage has passed over, and the febrile excitement set in. During the distressing chills, and prostration which frequently suppress the hectic irritation in phthisis, and other inflammations with suppuration, we find the patient unable to bear contra-stimulants and antimonial preparations, which are tolerated, and are beneficial, so soon as the febrile excitement reappears. This transitory state of depression or contra-stimulus, (which is not confined to the nerves, as some authors pretend, but also extends to the sanguineous vessels, which exhibit in their action a corresponding prostration; in the cellular tissue, in the skin, and indeed throughout the whole system;) this state I say, during which it would be dangerous to employ cold, emetics, or bloodletting, merits our serious attention; and if it be true that the capacity of bearing contra-stimulants be the character and measure of the phlogistic diathesis, it is necessary to admit also, that during

the course of the same disease, changes in the state of the diathesis may supervene though temporary (17). These facts lead me to consider the morbid condition of the fibre during pain. It appears to me that pain, whatever may be its cause, is in itself a state of greater or less contra-stimulus, as I endeavoured to show in a memoir read before the Institute last summer. The state of pain presents an infinite variety of gradations and modifications, from mere uneasiness, slight disgust, or trifling suffering, to the most violent spasms and sensations which threaten lypothemy: and thus offers in each degree, a different state of contra-stimulus, or vital depression of fibre (18). Whatever may be the importance attached to my conjectures, at any rate, observation obliges us in every case, to consider pain as capable of producing effects on the excitement which are peculiar to it, and which are often very different from those that the disease ought to produce, which is the effect of the pain itself. A violent vomiting, I repeat, or a violent pain accompanied with cold sweats and fainting, obliges us very often to suspend, at least for a time the treatment which is proper for the principal disease; and if we should view in its true light the reaction which originally succeeds to pain or great prostration when carried to a certain extent; and endeavour by the use of stimulants to destroy the commencement of the state of contra-stimulus, produced by a mechanical or moral cause, as the application of cold or terror; we might prevent the development of the phlogistic excitement which otherwise would not fail to succeed (19). These considerations, such as they are, have been dictated by the observation of facts and may at least serve to inspire practical precautions: they explain certain pathological contradictions, and still further place the new doctrine in accordance with the doctrines of some ancient and modern writers, which it would be difficult to do without them.

X. It is necessary in order to furnish the elementary principles of a theoretical and practical reform in medicine, to show more clearly what the morbid condition of the living fibre is, which is ordinarily designated by the term *irritation.* This morbid condition must not be confounded with the diathesis of stimulus, nor with that of contra-stimulus; for the morbific powers which produce it can never, under any circumstances, in which the animal machine can be placed, nor in any form whatever, produce original (*normal*) excitement. These powers which are equally distinct from stimulants, the subtraction of stimulants, and contra-stimulants have already been treated by Brown in the third chapter of the fifth part of his Elements. It appears from some laconic but important expressions of this profound author, that he considered as irritant every power or condition capable of disturbing the economy, but incapable of exciting or depressing; and that he regarded the irritation as a local affection, because it could not be cured either by augmenting or diminishing stimulants, but only by causing the local and disturbed condition to cease, or by expelling the irritating matter. In 1801, the ingenious Dr. Guani made a profound examination of the morbific powers which are capable of disturbing and deranging the system without acting by excess or defect of excitement. He did not dwell on the mechanical lessons which produce these derangements; but considered particularly certain agents, as poisons, miasmata, contagions, and all substances which are incapable in any quantity whatever, of duly stimulating, but always produce disturbance, and irritation; his explanation of these peculiar effects is, that there exists a sort of heterogenity or defect of affinity, between these substances and the apetency of the animal fibre; which is the reason that their application produces in the fibre itself, a movement of repugnance, disorder, or disgust; in a word, a movement altogether different from that of

excitation.* But the doctrine of irritation has received a fuller development from the profound reflections of my illustrious fellow-citizen and colleague, Professor Rubini. This author has shewn not only that the action of irritant agents is confined to disturbing and deranging the animal machine, without influencing in any manner the excitement of the *Brunonians;* but he has besides established the distinctive characters of diseases of irritation. He believes that this morbid condition of the fibre constitutes a third diathesis, which causes neither excess, nor defect of stimulus or vital action, but produces merely a change of condition, and a *discordance* (disharmonie) in the movements. He calls it the *diathesis of irritation.* If my ideas do not accord entirely with those of my colleague, and if I do not acknowledge with him a *third diathesis* in the effects of irritant agents, and in the disorders they occasion, it is principally for the following reasons, which I have more fully explained elsewhere (20), and have been detailed in my work on the diathesis, published the last year; 1o. Because the diseases of the sthenic or asthenic diathesis, of stimulus or contra-stimulus

* Although Dr Broussais seems to reject the distinction established by the ancients, between irritation and stimulation or excitation, in the fifth chapter of his examination, yet he admits that "*the economy may be stimulated in a manner which repels or clashes with the exercise of the vital laws: for, says he, there exist relations between external agents and the vital properties of the economy, so that some substances are as it were conformable, and others repugnant to the vital laws. Of the latter kind are the poisons.*" Examination 1821; Prop 42. It seems to me that Mr. Broussais approaches here very near to the Italian doctrine and this stimulation, which is repugnant to the vital laws appears to me to be analogous to the irritation of the Italians. Doctor Guani had established as a principle in 1801, in his reflections on the epidemic of Liguria; 1o, that there exists substances which are unassimulating and heterogeneous, and incapable of producing an action analogous to animal excitement, which he calls *stimulating irritants;* 2o, that man as well as other animals is endowed with a property inherent in his organization, which admits or rejects all which comes either mediately or immediately in contact with it: he names this property *animal affinity.*

continue after the cessation of the causes which have produced them: so that after the cause has been discontinued (such as mental affections, abuse of spirituous liquors, violent exercise, or a stroke of the sun, &c.) the diathesis or the diathesic condition which it has produced, still remains to be overcome, sometimes existing in its full force, and sometimes even continuing to increase for a long time after: whilst on the contrary, the principal character of diseases of irritation, is, on the removal of the irritating cause to cease, or at any rate soon after to diminish in intensity (21); 2o. Because diseases of diathesis can be cured whilst the cause which has produced them still subsists, for example, the violent heat of a burning atmosphere, or a severe cold; the disease from the first cause is removed by the use of blood-letting, and contra-stimulants, and from the second, by the employment of stimulants: we can on the contrary, cure diseases of irritation by removing only the irritant cause itself (22*). Although I cannot admit that the principal characters of the diathesis, at least in the sense of the term as employed by Brown, exist in irritative affections, I admit nevertheless, the distinctive characters of irritating agents, and of irritation; I adopt the very useful application of this new branch of knowledge to the theory and practice of medicine; and in

* The term *diathesis* is not employed by Tommasini, as it was by Brown to express a simple excess or defect of excitement uniformly diffused throughout the system. The professor gives the name of diathesis to a morbid condition, a vital process either of excess of stimulus, or of contra-stimulus, which survives the cause that has produced it, and continues to increase for a long time after the cause has ceased to be applied.

This morbid condition is sometimes universally propagated, or nearly so, to the whole economy; sometimes it is chiefly exerted on some part, producing but little influence on the rest of the system; and sometimes again it is wholly circumscribed to one part, whilst the rest of the system is in a different and even opposite condition Inflammation affords us examples of each of these modifications; and indeed, the diathesic process of stimulus is no other than nflammation itself.

my researches on diseases of diathesis, or diseases rendered general by the *diffusion of partial morbid excitation*, I show that the consequences of local irritative action, either mechanical or chemical, which disturbs the organic action of the system, can develop a morbid condition capable of producing the excitement of the Brunonians, and of creating a diathesis (23).

XI. I published my opinions on irritation in the year 1805, and the illustrious Giannini guided by other reasons, came to the same conclusions but in a different way; for, after having attentively examined the effects of irritating powers, he agreed with me to regard irritation as a local affection. He pertinently referred to the passages in Brown's work which relate to it, and especially the *tumultus toto corpore diffusus*; he critically observed the effects of irritating substances which he believed were carried into the torrent of the circulation and produced a disorder which could not be confounded, either with augmentation or diminution of excitement; which he characterized by the ingenious expression of *affections universally local* (24): this was certainly distinguishing with singular felicity the difference between irritative and diathesic affections.* In 1806 Professor Bondioli also de-

* Fournier and Broussais would seem to regard this expression of Gianinni as ridiculous. The latter, in his examination, says, that it is a *subtility worthy of the most refined doctrine*. These authors it seems to me do not fully comprehend the value of this expression. These are the words of Giannini: "*Questa irritazione diffusa per tutta macchina, perche diffusa universalmente vi e la materia irritante, porta avunque la localita, e vi produce, se cosi e lecito esprimermi un' affezione universalmente locale*" .... This irritation, produced by contagious matter, diffused throughout the system (for irritating matter is sometimes so diffused) produces a locality in every part to which it is extended, and occasions, if I may so express myself, a disease, an affection universally local. *Giannini on the nature of fever* vol. 1. p. 334. In the journal of the new Italian doctrine, the meaning of the expression is illustrated by the following example; if a cruel hand should plunge a number of thorns into the skin of an individual, so that it became entirely covered with them, the disease would be local, for each thorn would affect

clared that the phenomena of irritation have a local origin and character; and he explains, by sympathetic communication of parts, the disturbance and disorder, which under the appearance of general disease succeeds to irritation (25). The illustrious Monteggia is inclined to regard as depressing, the first painful impression of powers which irritate, and mechanically injure the texture of parts, (which accords with the ideas I have given on pain); he regards the morbid condition which succeeds their application as phlogistic, and productive of the diathesis of stimulus (which is conformable to what I have said on that diffusive morbid condition and diathesis which often succeed to irritation;) and, besides, he does not fail to acknowledge, as a character which distinguishes irritative affections from those of diathesis, the necessity of removing the offending cause in order to cure them (26). It was in part from data already furnished by myself, and in part from his own ulterior reflections, that the celebrated Fanzago has also declared, more fully and particularly than others, that affections which arose from an irritating cause, or from mechanical derangement, even when they are accompanied with extensive disorder, present only the characters of local diseases (27).

XII. Whatever may be the point of view in which we consider irritative actions, it is certain that the researches which have been made on this subject have thrown much light on many important points of pathology and practice. Indeed, whether we consider substances, and irritative disorders, which act neither by stimulating nor contra-stimulating, but

at least during the first moments, only the part into which it is plunged, and the disease would be so entirely dependant on locality, that it would be necessary, in order to cure it in all the affected parts, to remove all the thorns. It would there be universally local, that is to say, local in all the points affected, of which each would have been a separate affection, independent of that of the others. *Journal of the new medical Italian doctrine.* vol. 1. p. 176.

by disturbing the system in a manner altogether different and peculiar to themselves, so that the diseases they produce can only be removed by removing the cause or local disorder, or perhaps by the employment of counter irritants (if indeed such exist, and can be designated;) (28) or that the pain which is excited, the discordant and painful condition of the parts affected, or the heterogeneous nature of the irritant principle, may possess the faculty of contra-stimulating the system, so as to render it necessary to have recourse to a stimulating plan of treatment, in order to prevent the consequences that would ensue, (but always after having removed the cause of the irritation or of the disorder:) or, finally, that the phlogistic process, as I believe, is developed, at least in a very great number of cases, as much in consequence of the pain and irritation, as from the laceration and distention of the fibres, and by extending its influence to the rest of the system, produces the diathesis of stimulus, and requires a suitable contra-stimulant treatment (29); In whatever point of view, I say, we consider the doctrine of irritation it abounds in valuable inductions, and forms a very important part of the new doctrine. It is worthy of remark in this place, that even in a general disease of the diathesis of stimulus, and in which there is inflammation of some part of the body, the phenomena of irritation may supervene in consequence of the inflammatory swelling of the affected part distending the fibres and thus deranging them; this has led certain authors to admit for these cases a phlogistico-irritative diathesis, but in our opinion without good reason; for the diathesic process which is curable by general treatment, is derived solely from the inflammation, and the phenomena of disturbance or irritation are the effects of the local distention of the fibres, as I have shown more in detail in my lectures on diathesis.

XIII. After having thus established the foundations of the new medical doctrine, and admitted the existence of two opposite classes of agents, as well morbific, as therapeutic; viz. stimulants and contra-stimulants, of which the one class is capable of correcting or producing reciprocally, the diathesis which has been produced or which can be corrected by the other; having placed the principal character and measure of each diathesis in the capacity of bearing opposite agents; destroyed the illusions which regarded indirect debility as the source of the greater part of diseases, and determined the influence and the invariable hypersthenic character (to use the language of Brown) of the most frequent and fatal of all morbid conditions, viz. inflammation; having also estimated the influence of certain powers which can temporally excite a phlogistic diathesis even in the midst of causes and appearances of an opposite character; and finally shown the influence which pain and irritation exert over the animal machine: it remains to analize more profoundly, and determine more precisely the characters. grades and extent of the diathesis of that morbid condition, which is the principal and continued object of the researches of the pathologist and of the practitioner. Two distinguished physicians, Professors Bondioli and Fanzago, have preceded me in this important labour, and the very able manner in which they have treated the subject, especially the latter, has not been without assistance to me. My ideas on diseases rendered general by the diffusion of local morbid excitation, have shown in part my opinion on this subject (31); the reflections contained in the note which accompanies my memoirs on the contra-stimulant action of different remedies still further disclose my maxims (32); and finally my lectures on diathesis which preceded our clinical exercises of the last year presented you with the *tout ensemble* of my ideas and those of others, as well as the results of our present actual knowledge on this

important matter. Each part of this doctrine was confirmed under your inspection by repeated observations and by its application to the treatment of those diseases which presented in the clinical wards. You have been able to verify by facts the character which I have assigned to diathesis, as generally understood by that term since the time of Brown, and none of you have failed to perceive the propriety, not only of distinguishing diseases into secondary (*instrumentales*) and dynamic, but also distinguishing the dynamic into those which exhibit a diathesic process, and those which are entirely deprived of that character. You have seen, that in order to regulate the conduct of physicians, remove abuses, prevent disasters, and render the rash more prudent, it is necessary, and of the utmost importance to consider the differences which depend on the greater or less extension of the diathesis, and on the greater or less concord of the different parts of the system although participating in the diathesis, with the part or parts which are the seat of the diathesic process (33). The classification* of diseases which I have proposed, or the table of the essential differences of the morbid state, deduced from the principles which have been laid down, have been favourably received and admitted by you, the professors, my colleagues, and other experienced auditors; which I view as a pledge that my ideas are believed to be conformable to facts.

XIV. It is time to confirm at the bedside the different parts of the new doctrine, which I have endeavoured this day to unfold; it is time to test its fundamental principles by their

* Tommasini has not yet published his classification, which is based on the curative indications and on the nature of diseases. Yet Bousquet has made an exposition of it in the Revue Medicale of March 1822, from the notes of some student of the Professor. This article may be consulted; but it is necessary to observe that it exhibits the principles in a false light, for, from the manner in which the classification is presented one would be led to believe that Tommasini regarded the symptoms as diseases, and that he believed that strength and debility can exist conjointly in the same diseases, &c.

application to facts, from which we believe them to have arisen, and to show their alliance with those facts. In the mean time I can assure you that the new doctrine, at least in its principal parts, received additional support from the modes of treatment that have been most successful and in most repute in all ages, and in the most celebrated schools, however the language they were once enveloped in, may have differed from it. Almost all the remedies employed with a view to expel, correct, sheath or blunt, as well as demulcents, diluents, refrigerants, &c. are so many contra-stimulants, and afford, either from their successful employment, or their innocent application, some proof in favor of the opinion of those who believe that the major part of diseases, both acute and chronic, even in feeble habits, present an inflammatory origin; and that the diathesis of stimulus is much more frequent than that of the opposite character(34). The remedies so much extolled by the chemical schools, for the good effects that have been obtained from them, were for the most part taken from the mineral kingdom; which affords scarcely any stimulant substances. Emetics, which have been to universally employed under different pretences, in almost all diseases whether acute, sporadic, epidemic, contagious, exanthematic, &c.; purgatives, which have been at all times properly employed in both acute and chronic affections; the most active medicines, employed with the view of expelling morbific matter (and in what disease has not its existence been suspected); bitters deobstruents, emmenagogues, aperients, diuretics, &c.; were all contra-stimulant remedies. We must not deceive ourselves by objecting to the conclusion, because their principles were erroneous; for those general modes of treatment which have been in vogue in all ages of medicine, doubtless derived their celebrity from their successful employment; and this success obtained from medicines, almost all antiplogistic, was, as it were, a presage of the doctrine

which was to succeed. Empiricism itself affords support to this doctrine. There are no specific or secret remedies, (and we must admit that they often produce astonishing effects) which are not more or less contra-stimulant.—James' powder, which is in such high estimation in England; many febrifuge bitters, which are of acknowledged utility in intermitting fevers, complicated with chronic visceral engorgement, and which have resisted the use of the Peruvian bark; aloetic and rhubarb pills, so generally and advantageously employed in dyspepsia, flatulency, and hypochondriasis; the chalybeate saline waters which are so extensively and beneficially employed; warm bathing, vermifuges which are frequently of great use in cases where there are no worms to expel; mercury and the different anti-syphilitic decoctions; the decoction of Salvadori, the waters of Pollini, and others of similar properties; are all remedies more or less drastic or emetic, purgative or resolvent, and they are all in a greater or less degree contra-stimulant or anti-plogistics

XV. But let us pass over the fortuitous success of empiricism, a success nevertheless, which can be attributed in the greatest number of instances to the depressing action of remedies, and which consequently proves that the diathesis of stimulus and phlogistic diseases are much more frequent than those of an opposite character; and endeavour to show that the greater part of physicians and authors of reputation, who have examined the two methods with impartiality, have in the greatest number of diseases given the preference to the depressing method. Indeed the greater part of ancient physicians, especially the immortal Sydenham, attribute injurious effects to the alexipharmic and heating treatment, and bear testimony in favour of the new doctrine. It is only necessary, in order to be convinced that the experience of all former times gives the preference to the antiplogistic method, to examine the principal classical works on practi-

cal medicine; those which Alexander Trallien, Settala, De Castro, Mercato, Huxham, Pringle, De Haen, Quarin, Borsieri and Frank, have left us, and which were composed after the most mature reflection and extensive observation on the treatment of diseases; to examine with attention the nature of their modes of treatment, the class of remedies which they recommended most frequently, even in diseases and fevers, which the Brunonians afterwards regarded as asthenic; and finally, to examine the facts which the ingenious Dr. Valli has collected, from ancient observation, and his own experience, in his memoir on the plague of Smyrna. If we speak of those physicians who were cotemporary with Brown, and who had already learned their art, when the doctrine of indirect debility and the supposed necessity of almost always stimulating, were in the highest reputation; we cannot deny that many of the most instructed and experienced among them have loudly disapproved of the heating method of treatment, and showed the sad effects it produced and the advantages to be obtained from a contrary method. We find that even the old practitioners of the present day who do not scorn to become acquainted with, and examine new productions, acknowledge that the principles of the new doctrine are conformable to observation, just in their assumptions, and of utility in the treatment of diseases. Not only physicians who keep pace with the progress of improvements, but many even of those who affect not to trouble themselves with any thing new; afford evidence that they do not despise these modern principles: for such is the force of truth that they have in a great measure, reformed their mode of treatment from these very principles. Indeed, pharmaceutical prescriptions do not present so great a combination of substances of contrary powers as formerly. Those even who are not the avowed advocates of the new doctrine, yet treat by the antiphlogistic method many dis-

eases which present the appearances of the asthenic diathesis of Brown: And in comparing the great use which was made but a few years past, of opium, ether, musk, volatile tinctures, &c. with the very little use that is now made of them, we clearly perceive that the reform is more general than is supposed. I do not deny that in more than one instance the medical doctrine of which we are now speaking, has been improperly applied, as has generally happened to all new doctrines; but it is not just to attribute to the doctrine what has arisen from the abuse which has been made of it—and the censures which have been urged against the excessive employment of contra-stimulant or evacuant methods, are not applicable to the principles which form the basis of the doctrine. These abuses will not occur, if an impartial and mature observation regulate the application of the curative means, and we exercise in our clinical labours that proper circumspection, and just doubt which never abandon the able practitioner accustomed to know and respect the dangers which environ his art. The study of the diathesis, in the view which I have taken of it, will also serve, if I am not deceived, to prevent certain excesses and dangers which might, besides, be easily avoided in the new doctrine; for if the maxims be just, the error can consist only in the abuse which is made of them: it was not thus with the doctrine of Brown, in which the maxims themselves comprised many very pernicious errors.*

* The remaining part of the Lecture is occupied in noticing the different recent works which have participated in that spirit of reform which has been some time operating and has finally produced the *Italian doctrine;* and in giving a minute and somewhat tedious detail of the numerous works which have appeared in Italy, on this subject. All of which would be uninteresting to the American physician and is accordingly omitted.

The copious explanatory and illustrative notes appended to the Lecture, and which are referred to by numerals scattered throughout the text, will be inserted in the succeeding number.

REVIEW.

A Treatise of the Materia Medica and Therapeutics by JOHN EBERLE, M. D. *Editor of the American Medical Recorder; Member of the American Philosophical Society, &c. &c. Two vol. 8vo. pp.* 977, *Philadelphia, Webster*, 1822.

Materia Medica if not as old as creation, cannot fall far short of it; diseases and accidents must have early rendered remedial means necessary, and the benefits which experience sanctioned, must very soon have distinguished and cherished it as a body of information, which both interest and humanity would combine to improve. The knowledge of it for ages, was no doubt very imperfect, and perhaps necessarily so; seeing that correct views of the physiology and Pathology of the human system could not be attained, without a competent acquaintance with its anatomical structure, in which physicians for ages were lamentably deficient; yet, imperfect as it was, as it addressed itself to the business and bosom of every member of the community, whom sickness or misfortune rendered a sufferer, it could not be long before it presented a multitude of interesting substances, which becoming too numerous for memory, and their supposed virtues too contradictory to claim confidence, rendered it expedient to arrange either according to their own specific properties, or the various circumstances of accidents or diseases, in which they had been found to be remediate. Their classification in these ways would clothe the information with the character of a distinct science, by showing the varied

articles in their relative affinities to different diseased states of the constitution; and experience the mother of wisdom would from time to time suggest further improvements, and alter, amend, or modify existing opinions, in order to its correspondence with more recently ascertained facts; till it finally assumed a consistency and a beauty, which would commend itself to the confidence and support of all interested in its benefits. Hence Materia Medica would very naturally be among the first branches of human knowledge, which would take rank as a science: accordingly we find in the earliest ages, the effects of medicines better understood, and their operations much more correctly noted, than any other facts connected with medicine. Confident empiricism first prescribed remedies, but disappointed expectations, indirectly suggested the rationale of their operation: and here perbaps, we find the origin of what in modern times we have designated by the term Therapeutics. Though connected with Materia Medica so intimately as in truth to be the very soul of the science, it could not be expected to preserve that uniformity of character as a system of reasoning, which the other maintained as a body of fact; for the obvious reason that it not only claimed the privilege to compare and arrange results, but also presumed to enquire into the immediate manner by which these results were effected: the consequence has been that systems of Materia Medica have multiplied in proportion, as the opinions of the modus operandi of medicines have varied; and as no one theory could satisfactorily account for the operation of all the medicinal articles, or even for the diversified effects of a single remedy, there is no difficulty in explaining the reason why books on this subject have abounded to an inconvenient, and we may almost say an unfortunate extent. Let the fact be explained as it may, thus much is certain, writers on Materia Medica

have for a long time been fully sensible of its truth, and appear solicitous rather to purge the science of its redundancies, than to add to the numerical amount of its remedies.

The book of which we purpose to give some short account, independent of its other merits, is valuable in this respect. Whether the author contemplates the great revolution in medical doctrines of which we have already had some distinct notes of preparation, and has anticipated its effects (which, by the way, we incline to believe) or not, we congratulate the medical public on this well timed effort to get rid of that "Augean accumulation" which notwithstanding all prior retrenchments still continues to lumber the pages of most writers on this subject. One great reason for the redundancy, which has been found so inconvenient, may be presumed to be that fondness for classification, which has promised so much and affected so little, not only in this but in all the other branches of science, which are conversant with the phenomena of living matter; we know so little of the principle of life, and so much of the varied causes operating thereon, that all data drawn from our knowledge of the one, or the determinate character of the other, must necessarily be imperfect; all speculations built on such frail foundations must in their progress either multiply error, or render indispensable such a multitude of provisions and exceptions, as to make the rules themselves, as regards their practical uses, if not unsafe, at least nugatory: hence we find that all systems of nosology, however vaunted by their authors, who may be forgiven for laying claim to credit for their ingenuity or industry in designing and arranging them, have served no purpose so effectually, as to distract the attention and destroy the confidence of all practical men, who have attempted to apply them: the plain principles of midwifery also, whose simplicity challenges the reliance, and commends itself to the understanding of every student, has suffered nothing but in-

jury from the various attempts of authors to give it the appearance of an exact science. As regards the immediate subject of these remarks, there can be no truth more obvious, than that all attempts at classification have utterly failed to make the science intelligible within any reasonable compass, and therefore it is, that the most intelligent of the profession who have written on the subject, have been anxious to have an apology for discarding many articles heretofore considered remedial.

It appeared to us that Dr. Eberle's book, was not so much intended to improve our knowlege of Materia Medica, as to give one connected and authenticated view of it, and to counteract the doctrines of a work of acknowledged merit, which appeared some few years since in Philadelphia; and the frequent mention of that work in terms scarcely commendatory, cannot fail to make a similar impression on the reader. Medical men are too familiar with the doctrines taught by Dr. Chapman in his Therapeutics, to render it necessary for us to recapitulate them, neither shall we absolutely pronounce upon their tendency here; though we may be permitted to observe of his book, that there is a candor, frankness, and even fearlessness in laying down positions known to be controverted, which nothing but the conviction of their truth joined to a perfect confidence in his ability to maintain and defend them, could either excuse or justify. And it must be confessed, that it possesses in an eminent degree that attribute essential to all stock works, to wit: the capacity to exericse the intellect of every reader, be his prejudices against its theories what they may.

With mere Materia Medica we never have been deeply enamoured, and perhaps our indifference to the science, arose more from the conviction which we felt, that if it was not impossible of attainment, it was at least so difficult to recollect and apply to practical uses, as to render any attempt to

acquire a perfect knowledge of it, nugatory, without a much greater sacrifice of time and study, than can properly consist with the obligations which every physician ought to feel, to qualify himself for the various branches of his arduous profession. The mere details of cures supposed to be performed, through the agency of remedies of which nothing was known before their accidental exhibition; though imposing in their appearance, will for the most part if closely examined with a due regard to all the circumstances of the cases as detailed, setting aside the equivocal nature of the cases themselves; leave the enquirer in as great uncertainty with respect to the nature of the remedies, and their modes of operation, as though he had never read them: and if he is prompted by curiosity or interest to prosecute the experiments, he will frequently be obliged to confess, notwithstanding the so much vaunted virtues of the articles, that in his hands, they have been proved useless or perhaps pernicious. Indeed so general has been the disappointment consequent upon the introduction of new remedies, that with many persons it is no longer a question whether the Materia Medica has been improved or not, by their super-addition. One thing is beyond a peradventure settled, the number of articles, whose nature and effects are well understood is comparatively small, although remedial agents are excessively numerous; the fact is impressive, and should rather teach us to direct our attention to acquire a thorough knowledge of those we possess, than spend our strength in search of new ones, which when found, instead of adding to the sum of our information, may merely serve to embarrass and confound our judgment in the exhibition of those already known. Taught by experience the truth of the above remarks, we have always viewed every effort to purge the Materia Medica of its feeble or injurious agents, as entitled to much more consideration and respect, than any labored attempt to increase the catalogue of

medicines, already too large to admit their judicious application in all the varied forms of disease, in which they are recommended.

We are well aware, that the expression of our opinions on this matter, may subject us to the imputation of betraying a degree of indifference to the cultivation of this branch of science, not easily reconcilable with that patience of research, that severity of study, and that intensity of application, which it should be the first duty of a medical journal to inculcate and recommend; but if we are properly understood, no inference can be more remote. We know that there are persons, and the author of this book is among the number, who believe that there are no two agents that are not identical in character, which can affect the living body in a manner precisely similar, and thence draw a reason for the necessity of a copious Materia Medica. Without stopping to enquire where the premises be true, and, by the way, we possess no means of judging whether they are or not; let us suppose it true, in order to see the consequence of the dogma when followed out: if it be true as regards remedial agents it certainly is, as respects all the causes of diseases; and as the impressions made on living matter admit of infinite variety, according to the greater or less susceptibility of the human system to be acted on, the results of these combined operations must necessarily be impressions so numerous, so various, and so modified, as not only to defy human ingenuity to describe, but, if described, to confound the most cultivated intellect in attempting to comprehend, much less to apply to any practical use. It is universally allowed that the rationale of the operation of medicines eludes the most severe scrutiny of experiment, and mocks all attempts at explanation; and we know so little of the causes of disease, and so much less of their mode of action in bringing about morbid changes, that whether we will or not, we are obliged

to rest satisfied with merely marking the connection between causes and consequences; and in this record alone consists all the information which may be strictly called Therapeutics. Whether it be wise in this view of the case to multiply remedial agents, rather than to direct our attention to a fuller investigation of those which the experience of others has introduced to our acquaintance; is a question which every practical physician must answer for himself: we on our part are free to acknowledge our conviction, that more injury has resulted from the empirical exhibition of new remedies, than from a misapplication of the whole catalogue of those which are generally known.

After what we have said, the reader will readily anticipate our opinion of Dr. Eberle's book; and although we feel constrained to differ from him in many instances, in which perhaps both he and ourselves ought in prudence to acknowledge our ignorance, yet we have no hesitancy in declaring that we think he has by its publication laid the medical profession under some obligations. The junior members of it, and students in particular, will find in this book as great a variety of facts respecting the remedial effects of medicines as in any other work of the same kind extant; and though for the most part they have been heretofore published in the medical annals of the day, still their collation and the criticisms of the author, to which they have sometimes given occasion, comprises a body of information which cannot fail to interest every person who is anxious to post up his accounts with his medical brethren who may have opportunities for acquiring information which his own avocations forbid him to enjoy. Judging from the specimen before us, Dr. Eberle does not appear *very anxious* to be considered either a humorist or solidist, as his opinions are occasionally tinged with the theories of both—his classification of remedies appears to have been chosen from a regard to his own convenience, and

is simple and comprehensive, answering all the purposes usually expected from such arrangements, though not quite so scientific, we suspect, as some modern reformers would require. It is not based on the effects of remedial agents on the various tissues which make up the system; nor upon their effects upon the various functions of digestion, secretion, respiration, &c. but borrows from both, more nearly resembling Granville's Synopsis, than any other.

The first great division in Dr. Eberle's arrangement is made to include "Medicines which operate specifically upon the intestinal canal, or upon morbific matter lodged in it" which comprises 1st, medicines that excite discharges; 2nd, medicines calculated to destroy or counteract the influence of deliterious substances lodged in it; in the first he includes emetics and cathartics, and in the second anthelmintics and antacids. As the observations on emetics and cathartics occupy nearly one half of his first volume and make up a large portion of the remedial means in the treatment of most diseases, we shall be excused if we devote a little more attention to the therapeutics of this part of the work, than some others seem to demand. The following is his definition of emetics, and his remarks on the art of vomiting.

An emetic is a substance which excites vomiting by a specific impression on the stomach, independent of mere distention from quantity, or of nauseous taste or smell.

With regard to the *Mechanism* of vomiting, experiments, apparently equally fair and conclusive, have led to very opposite results. *Chirac*, a French physician of the 17th century, published an account of some experiments which he had performed on living animals, with a view of ascertaining the particular process of vomiting. The conclusions which he drew from his experiments are, that in the act of vomiting the stomach is quiescent, and that its contents are ejected solely by being forcibly compressed between the diaphragm and abdominal muscles. Magendie, without alluding to the experiments of *Chirac*, has lately arrived at the same conclusions, from a set of experiments he performed on this subject. The experiments of Haighton, on the contrary, seem to prove,

very conclusively, that vomiting is chiefly, if not entirely, effected by the contraction of the muscular coat of the stomach; and this opinion is now almost universally entertained on this subject. There can, however, be but little doubt, that all the powers that have been mentioned, conspire to produce the act of vomiting. The stomach contracts, its peristaltic action is inverted, the diaphragm and abdominal muscles are brought into action, and thus, by the combined agency of all these powers, emesis is produced

How do emetics excite these actions of the stomach and muscles concerned in vomiting? The speculations of Darwin on this subject, though, perhaps, untenable upon the whole, are not without considerable plausibility. He alleges that the excitement of the stomach is greatly diminished by the action of an emetic; in consequence of which its peristaltic motion becomes inverted. When nausea is produced, (says he,) the stomach, as well as the whole system, is in a state of temporary debility. As the nausea increases in intensity, the natural powers of the stomach are more and more diminished, until they cease altogether, and give rise to an inverted motion of its muscular fibres. In confirmation of this view of the subject, he refers to the vomiting produced by causes manifestly debilitating, such as syncope, concussion of the brain, &c.

It is impossible to ascertain the precise nature of the changes which take place in the living system from the operation of extraneous causes. All that we can hope to arrive at in this respect, is a knowledge of the general character and order of phenomena; a point, indeed, which is but seldom allowed us to attain When an agent is applied to the system, a longer or shorter train of actions occurs intermediate between the application of the cause and its ultimate or characteristic effect. In proportion as we trace these successive links in the chain of actions which results from the operation of a remedy, so do we succeed in attaining a knowledge of its modus operandi. With regard to the operation of emetics, therefore, we may trace, I think, the following series of actions The emetic, in the first place, makes an impression on the sentient extremities of the nerves of the stomach This impression is immediately referred to the sensorium commune; in consequence of which its natural energies are diminished, as is evinced by the languor of both the intellectual and corporeal powers. But as the sensation of an irritated organ depends, in reality, directly on a peculiar excitement in the sensorium commune, so we may infer, that the sensation of nausea is the immediate and necessary result of the diminished and peculiar cerebral excitement, referred to the stomach. That this is, in fact, the case, is demonstrated by the

vomiting and nausea which is sometimes excited, at the sight, smell, taste, or even the thought of a disgusting object. Here, however, our progress is arrested. For we can trace no necessary connection betwen nausea and the mechanical process of vomiting. We know not why a certain degree of nausea produces contractions of the organs concerned in this act, any more than we know, why a certain degree of venereal excitement calls into action the muscles concerned in *ejectione seminis.* These are mysteries locked up in the bosom of our CREATOR, and about which it would be idle to speculate.

The view here taken of this subject is no doubt, that generally received, and perhaps it is a matter more of curiosity than real interest to enquire farther; though we think the explanation might be improved in several points: for instance, It is quite problematical whether any of the parts brought into action during the operation of an emetic, except the stomach itself, have any necessary dependence upon the emetic substance. It is true that the diaphragm is depressed, and that the abdominal muscles appear to contract violently upon the contents of its cavity; but as we can trace no immediate connection between those muscles and the stomach, it appears to us more reasonable to conclude that whatever action is manifested by the diaphragm, intercostal or abdominal muscles, is merely the effect of mechanical pressure of the external air, occasioned by the diminution of the volume of the stomach during the act of inversion; that this is the state of the case would seem probable from the fact, that vomiting under all circumstances is always thus attended. We know that pressure upon the brain whether from external violence or internal congestion is almost invariably accompanied by the same phenomena, although all muscular action except that of the heart and diaphragm is suspended, from deficiency of excitement, and if vomiting arises from the recollection of any offensive subject, from moving rapidly in a circle, from riding backwards in a carriage, &c. the same affection of these muscles invariably occurs. What the peculiar nature

of that action is, which is the immediate cause of vomiting we can never know, nor is it essential that we should; though it is highly probable that it depends less upon any hidden or specific qualities of the substances themselves, which we call emetics, than upon their varied powers to produce in a longer or shorter time that debility of the stomach which we have been accustomed to view as the immediate precursor of irregular action. All speculations based upon the sensible properties of emetic substances we know are futile; for articles of most opposite characters under all the views in which they can be compared, enter into this class of remedies; in one thing and one only do they all appear to agree: they all induce a debility of the organ antecedent to their operation, and whether we experiment with mustard, or tobacco, volatile alkali or oil, alkahol or warm water, the results will be the same, though the times in which the effect will be produced, will be in an inverse proportion to their stimulant or sedative qualities.

While on the subject of the general operation of Emetics, Dr. Eberle takes occasion to explain the fact of their diminishing the amount of effused fluids, in the various cavities of the human system.

It has been satisfactorily ascertained, says he, "that effused fluids are often rapidly diminished during the operation of emetics, and hence it is inferred that they *increase*, either in a direct or indirect manner, the *activity* of the absorbents. Dr. Chapman supposes that there is a kind of antagonising power between the absorbents and the blood-vessels; in consequence of which the activity of the former set of vessels, is *indirectly* increased from the operation of emetics by the reduction of the arterial action which they create. The circumstance of a more rapid disappearance of effused fluid, during the employment of emetic remedies, admits, however, of an explanation more philosophical, and, I think, satisfactory. When an effused fluid accumulates in the body, it must be owing either to too rapid an exhalation from the arteries, or too slow an absorption by the lymphatics. Whichsoever be the

case, it is quite certain that if we lessen the action of exhalent vessels. the quantity of the effused fluid must diminish, although the action of the absorbents remain unaltered. It is in this way, therefore, I presume, that emetics act when they diminish dropsical accumulations. They lessen the action of the heart and arteries, and consequently diminish exhalation. If the lymphatics, therefore, preserve but their ordinary powers, they will diminish the quantity of collected fluid, or at least greatly retard the progress of its ordinary increase. This effect, namely, diminished exhalation into the internal cavities, and consequent diminution of the fluid already collected, may be further enhanced by the tendency which emetics have to determine the circulation from the internal to the external surface.

It will be readily discovered that this explanation proceeds upon the hypothesis that all hydropic collections are the effects of increased action of exhalents, for, although he offers diminished action of the absorbents, as one cause which may co-operate to the effect, it is by no means necessary to *his* exposition, seeing that the result would be the same if we consider this increased action not in relation to the healthy standard, be that what it may, but in reference solely to the power of the lymphatic system of vesels to take up the fluids as effused—the action of the exhalent vessels may be much less than shall consist with health, and still effusion be the consequence of the destruction of the balance between these two systems of vessels; and Dr. E. allows that whether the cause of these effusions be increased action in one set of vessels or diminished energy in the other; their removal would be effected by addressing our remedies merely to the one in exclusion of the other. The explanation though simple is not sound; for it assumes as true, that which is not only not proved but which is utterly unsusceptible of proof, viz. that to diminish the action of the exhalent system is the true indication in the cure of dropsy. There are cases of dropsy attended with increased action in the circulatory system, and those cases are almost invaria-

bly relieved by such measures as are calculated to reduce inflammatory action, and which may very properly be said to originate from excess of power in the exhalents; but the far greater number of these diseases arise from visceral obstruction which is a cause intermediate between excessive simulation and its natural effect, excessive secretion: in all such cases, we presume it will be found that the remedies in their primary operation are calculated to remove such obstruction, in failing to do which, we necessarily are disappointed in our expectations of cure. It surely will not be contended that these remedial means operate by diminishing the power of the exhalents, so far indeed is that from being the end proposed, that we almost invariably prescribe medicines, calculated to excite the sanguineous system, in order to remove glandular disease.

It will not be expected of us, that we should follow Dr. Eberle through his numerous authorities in favour of the use of emetics in particular diseases—they have been hitherto used to an almost incredible extent in the treatment of fevers and phlegmasiæ, and, although our author has treated this subject very much at large, it appears to us from the evidence adduced by himself, that emetics in all the diseases except tracheal inflammation and asthma, are not so much to be considered remedies indispensible as incidental or auxilliary, and sometimes indeed very equivocal.

The number of emetic medicines of which Dr. E. has spoken, although small might still be advantageously reduced by omitting the scilla maratima, the lobelia and the sulphuret of antimony, the first more properly finds a place among diuretics, and the last among diaphoretics.

The very general exhibition of antimonial preparations in the various forms of fever, has given occasion to various speculations on their modus operandi. The following are those of Dr. E., suggested it would seem by reading the remarks of

Dr. Chapman on the same subject; and in order that our quotation may not be unnecessarily tedious, we will briefly state the substance of them. In accordance with the opinions of Dr. Fordyce, who maintained that antimonial medicines were most serviceable in fevers, when the stomach was least disordered by their operation, Dr. Chapman concludes that they are instrumental in the cure of fevers, by virtue of an action which is to them peculiar or specific; and that when the stomach is affected by them, this peculiar action ceases to be exerted, or if exerted, ceases to be effectual, because controlled by that excited in the stomach; and in the consideration of this opinion he adduces a fact which is certainly indisputable, viz. that many of our most efficient febrifuge preparations are peculiarly grateful, and calculated to remove nausea in cases where that unpleasant symptom is present. But in order that he may not be misunderstood, he observes that while they, like Mercury, Arsenic or Bark, operate by a peculiar power, their efficacy in fevers will be proportioned to the quantities used, provided they be not so excessive, or their exhibition so ill timed, as to interfere with their proper action, which cannot consist with the presence of nausea.

"Upon this subject," says Dr. Eberle, "Dr. Chapman gives us some "curious" speculations. "Medicines," says he, "seem to do good in the cure of fever by exciting their *own* specific or peculiar action, and when they disorder the stomach by sickness, they depart from this, and, if they do not act as poisons always become *nugatory*, or more or less *mischievous*."

That tartar emetic has a tendency to lessen febrile excitement, independent of its nauseating effect, appears to be beyond a doubt; yet the declaration that the *nausea* which it creates, renders its anti-febrile effects "nugatory or mischievous," is wholly gratuitous, and unsupported by experience. All that can be correctly said upon this point is, that the good effects of this remedy in acute diseases are not confined to *nauseating doses;* just as the anti-syphilitic powers of mercury are not confined to its salivating effects.

The idea that tartar emetic "departs from its specific or pecu-

liar action when it creates *nausea*," is to me altogether incomprehensible. *Nausea* is but an intermediate link in the chain of effects produced by this remedy; and to say that its peculiar operation ceases when this effect supervenes, appears to me to carry with it its own contradiction, and certainly is without the shadow of a proof. We might, with just as much propriety, assert that when mercury produces ptyalism, it departs from its peculiar or specific action, and becomes " nugatory or mischievous "

Dr. Chapman seems to think that he explains the febrifuge operation of antimonials, by asserting that, " like mercury, lead, arsenic, bark, &c. they operate by virtue of a peculiar power." This, it must be confessed, is not very edifying; since to say that an agent produces its effects " by virtue of a peculiar power," is, indeed, to utter what no one will deny, but what cannot convey the least information concerning the nature or character of its operation.

It appears to be ascertained beyond a doubt, that tartar emetic has a specific power of moderating the action of the heart and arteries; and upon this power, there is much reason to believe, its good effects in acute diseases mainly depend. Although this effect of the remedy, namely, the reduction of arterial excitement, unquestionably takes place, independent of *nausea*, yet there are no facts which can lead us to believe that it *ceases* when the nausea comes on. Every thing, on the contrary, clearly demonstrates, that when nausea does supervene, the action of the sanguiferous system is still more prostrated. It is not reasonable, therefore to, say, that nausea renders the febrifuge operation of this substance " nugatory;" an assertion which is indeed contradicted by universal experience. From what I have observed of the operation of antimonials in the cure of fevers, I am of opinion that its good effects will be most decidedly manifested, when it is given in doses just sufficient to create and sustain very *slight* nausea. Much of the advantage of this, as perhaps of all other remedies, depends, I conceive, on keeping up an equal impression upon the system. If the degree of the action be greatly varied, irregular and fluctuating determinations must take place in the body. For it must be observed, that, in proportion as the action of a remedy rises in degree, so does it successively bring under its more especial influence particular organs of the system; and hence, if its impressions fluctuate in intensity, there will be a corresponding fluctuation in the action of the organs upon which the peculiar powers of the remedy determines it to act. Thus a dose of tartarized antimony first acts upon the nerves and brain, whose influence, according to the experiments of Brodie, it diminishes. As a necessary consequence of this, the capillaries, being more immediately under the nervous influ-

ence, fall into a corresponding state of relaxation, and give rise not only to a determination of blood from the central to the exterior vessels, but also to a freer separation of the perspiratory fluid. If the action of the remedy rise still higher in intensity, it brings under its influence the stomach, giving rise to the sensation of *nausea;* this effect being the result of a greater degree of sedative operation than the preceding ones, it is, of course, attended with an augmented relaxation of the cutaneous capillaries, and consequently with a more profuse discharge of perspiration. A still higher degree of the influence of the remedy directs its action more especially upon the muscular fibres of the stomach, diaphragm, and upon the abdominal muscles, all of which it brings into violent and simultaneous contraction. From all this it is evident that, by frequently varying the degree of action of our remedy, we keep up an irregular fluctuation of the excitement of the organs which it affects, a circumstance which I conceive must interfere very considerably with its salutary operation.

It is upon this principle, therefore, that I would object to the employment of *nauseating* doses of antimonial remedies, and not upon the supposition that their febrifuge effects are incompatible with their nauseating operation, as is imagined by Dr. Chapman. In order to obtain the full advantages of these remedies, their action must be kept up for a considerable time. But it is often extremely difficult to keep up a *nausea* for any length of time, in consequence of its distressing effects upon the patient. It is therefore, not often sustained with uniformity, and generally very frequently interrupted Hence we have its chief action at one time concentrated upon the stomach and cutaneous capillaries, and again suddenly withdrawn from these, to be directed exclusively upon other parts. These disadvantages are, however, wholly avoided by exhibiting the remedy in doses insufficient to excite nausea; since in such under-doses, its effects are confined exclusively to the nervous and sanguiferous systems; whose actions it moderates without producing any fluctuations in the excitement of particular organs. If, in prescribing antimonials, we can keep up a continued and uninterrupted nausea, for an adequate length of time, we shall, I am persuaded, obtain the full advantages of the remedy. But as there is a difficulty in effecting this, it will, I think, be best either never to carry it to the point of producing nausea, or perhaps, as I have already said, just far enough to excite this sensation in a very slight degree. This may be further illustrated by the effects which mercury produces on the system. Thus while we keep up a uniform ptyalism, we fully obtain the peculiar sanative effects of this substance, in, perhaps as short a period as is possible. If, however,

it becomes frequently interrupted, and again renewed, we derive much less benefit from it than we do either from a course of continued salivation, or from one in which the mercury is never carried to the extent of producing this effect.

I conceive, therefore, that the antiphlogistic operation of the antimonial preparations depend upon *their sedative effects;* first on the nervous system, and consecutively on the heart and arteries; and that these effects will be the more advantageous as they are more equally diffused throughout the whole system.

It is not our business to weigh the arguments or ballance the evidence adduced by these two gentlemen, but we must remark, it appears to us not a little strange that Dr. E. should charge that as a fault in Dr. Chapman, which in the very next sentence he himself not only allows, but embraces as his own opinion, viz. that antimonials operate by virtue of a specific power. The real difference between Dr. E. & Dr. C. is, the one insists that the powers of the medicines are best evolved when nausea is induced; whereas the other contends, that they cease to be effective as antimonial, whenever their exhibition is pressed to that extent. On this subject if we ever had any doubt, the late experience of the Italian physicians, Rasori and Tommasani, would have removed them; for they have shown that the remedies in question may be given to an extent hitherto deemed incredible, without ever producing either nausea or vomiting, neither of which is essentially necessary, but on the contrary positively injurious to their proper operation: the experience of Drs. Arnaud, Laennec, and Peschier, are also to the same point.

That much of the good effect of antimonial medicines depends upon maintaining an equable action on the system, we willingly admit; but we must question, whether it be possible to answer this indication, when the remedy is pushed to such an extent as to create nausea, for it is precisely that state of stomach which is the most distressing and debilitating to the patient, not even excepting the act of vomit-

ing itself, and therefore cannot be persisted in. The reasonings of Dr. E. therefore, on this subject, however ingenious, we believe cannot be maintained in opposition to the opinions of Dr. Chapman, seeing that the one has just as good a right as the other to frame his arguments upon hypothesis in the absence of known fact, which they both have done. The difference between them, as before said, amounts to this, the one contends that the medicines in question lose their proper operation when permitted to nauseate, and for that reason are less effectual in the cure of fevers; and the other, though he admits the difference in their efficacy under these circumstances, insists that it does not arise from any intrinsic variation in its mode of operation, but from the difficulty of maintaining an equable action upon the system, when used to such extent.

Cathartics.—The chapter devoted to the consideration of this class of medicines, is interesting not only on account of the general reasonings upon their mode of operation, but on account of the practical remarks which have been freely introduced to illustrate their action, or recommend their exhibition. After stating the known variations in their operation upon different sections of the intestinal canal, Dr. Eberle offers some opinions upon their general effects on the human system in a state of disease, which, although sufficiently notorious to the observant practitioner, have not heretofore been satisfactorily explained; and in order that we may not incur the hazard of misquoting him from memory, we will transcribe them.

Besides the more immediate operation of evacuating the contents of the bowels, cathartics produce other effects on the animal economy, to which no small part of their remediate powers may with reason, be ascribed.

1 They diminish the action of the heart and arteries, and consequently act with more or less advantage in all diseases of a sthenic character. This effect they produce, not only by evacuating

the bowels of vitiated or accumulated contents, and thereby removing a source of general irritation, but also by abstracting from the contents of the blood vessels themselves, by augmenting the secretion of serous fluid from the exhalants of the alimentary canal. In this respect the operation of these remedies resembles, in some degree, those of blisters; which, though acting primarily as stimulants upon the sanguiferous system, reduce its action as a secondary effect, by the effusion of the serum which they occasion.

2. They promote the absorption of fluids, from the internal cavities. This effect they produce by a two-fold operation; namely, by depriving the blood-vessels of a considerable portion of their serous contents, and by augmenting, as a consequence of this, the reabsorption of serum, from those cavities, in which it may exist in a state of morbid accumulation. To render this explanation intelligible, it will be necessary to enter into a more particular exposition of the grounds upon which it rests. It appears to be conclusively established, both by direct experiment and pathological observations, that absorption is accelerated in proportion as the quantity of fluid circulating in the blood-vessels is diminished. It would appear too, that there is a constant effort in the system to preserve the regular proportion of serum in the blood, and that its inordinate loss by one emunctory, is counterbalanced either by a greater absorption from some of the internal cavities, in which it may be accumulated, or by the diminished action of one or more of the other serous emunctories. Thus when the exhalants of the peritoneum effuse a preternatural portion of serum into the cavity of the abdomen, producing ascites, the morbid diminution of this fluid in the blood vessels is, in some degree, counteracted by the *diminished* action of the cutaneous exhalants, and of the kidneys. The moment, however, that the kidneys are excited into a more perfect performance of their functions, then (this check to the morbid diminution of the serum of the blood being removed) some new supplying power is requisite to keep up the necessary proportion of serous fluid in the blood vessels; hence the absorbents are called into action, and the dropsical fluid is reabsorbed into the circulation, and thence eliminated by the regular emunctories. From these facts, therefore, we readily perceive the manner in which active cathartics promote the absorption of dropsical effusions. By irritating the exhalants of the internal surface of the intestines, a very greatly increased secretion of serum is suddenly produced by the action of these remedies. As a consequence of this, not only is the further effusion of dropsical fluid diminished by deriving the blood from the exhalants of the cavities to those of the intestines, but its existing bulk is also directly lessened, by the ab-

sorbents resuming a more vigorous action in order to supply the deficiency which the purging has suddenly induced in the serous portion of the blood. This view of the subject will aid us, I think, in accounting for the fact mentioned by Dr Paris and others, that cathartics often increase the effects of diuretics. If, for instance, we give a diuretic to a dropsical patient, a slight but insufficient increase of urinary secretion, for the most part, follows; the absorption is, of course, proportionally small. Let a cathartic be now administered. This will excite a sudden and considerable increase of serous evacuation by the bowels; hence, an unusual demand for a restitution of this constituent portion of the blood is created; and, by consequence, a new impulse given to the supplying or absorbing vessels; which, continuing *after* the operation of the cathartic has ceased, will have the effect of supplying the kidneys with a larger portion of the elements of their secretion, and, therefore, enable those medicaments which are calculated to increase their action, to operate more effectually.

3. Cathartics have a tendency to remove the torpor which sometimes prevails in the portal circulation, and to promote the biliary secretion. This they do by exciting "a brisk peristaltic motion of the intestines, whereby the blood which is accumulated, and, as it were stagnated in the portal circle, is propelled forwards."

4. They produce a powerful derivation of the circulation from the superior to the inferior parts of the body, on the principle of *ubi irritatio ibi fluxus;* and hence their utility in cephalic diseases.

It may be observed, that, under particular circumstances, bleeding has a decided effect in increasing the susceptibility of the intestinal canal to the operation of cathartic medicines. "I have often noticed this fact," says Dr. Paris, "in contending with a plethoric diathesis; whenever the bleeding preceded the purgative, the effects of the latter have been uniformly more speedy and considerable; in obstinate constipation the same fact has been observed, and mild remedies have been known to act more powerfully, when preceded by blood-letting, than potent ones have when exhibited antecedent to it."

The facts here stated are undoubtedly true, and the reasons for them, for the most part, sufficiently obvious and natural, although under his second head, we think Dr. E. has exposed himself to severe criticism in attempting to explain the modus operandi of cathartics in dropsies. No man will deny that these medicines are serviceable in these diseases, but we are persuaded that many more readers will rest satis-

fied with the fact without any explanation, that will consider Dr. E's reasoning as perfectly conclusive on this matter. It is not objected to Dr. E. that he does not explain the phenomena, if we admit the data upon which he proceeds; but that the premises which he assumes are not true: and that if they were, they would explain too much. In the first place he assumes as a fact, that absorption is active in inverse proportion to the quantity of fluid in the circulatory system, which is considered as settled by the direct experiment of Mr. Majendie; and secondly, he requires us to admit as a law of the animal economy, that there is a constant effort in the human system to preserve a regular proportion of serum in the blood; both of which are objectionable: the one is too feebly supported to be considered a fact, and the other is purely gratuitous. In order to show the fallacy of the first position, it is only necessary to adduce the well known experience of many medical gentlemen who consider acute rheumatism as a disease purely inflammatory, and treat it accordingly. They are frequently obliged to correct their pathology and desist from prosecuting their depleting plan, having detected (what perhaps they least expected) serious effusions in the lower extremities and abdomen, the necessary result, not of the disease, but of their remedies.—Intermittent fever offers another example not less instructive on this point; the disease left to itself, or treated inefficiently by domestic remedies, as happens very fequently in inland and secluded situations; terminates after the lapse of five, six, or eight weeks in abdominal effusion, though the patient has been deluged every day, or every other day, for the space of three hours in his own perspiration. It is no objection to this latter example, to say, that the effusion is attributable to partial derangement of the lymphatic system, and that visceral obstruction is its immediate cause; for however well founded the objection may be, it is not availa-

ble to the advocates of Dr. E's. explanation; seeing that it has occurred after a lapse of time, and a continuance of the disease, (to say nothing of the destruction of the balance of constituent principles entering into the blood,) sufficiently long to have materially diminished the amount of fluid circulating in the system. If it were true, upon what principles it might be asked, shall we account for the appearance of the dropsy which so generally attends profuse hæmorrhage? In short it appears to us that no position is more fallacious, which does not involve absurdity in its terms.

With respect to the second point, if as before observed, it is not a mere assumption, the facts which appear to support such an opinion are by no means sufficiently numerous to warrant us in adopting it as a principal; indeed we know of none which would authorise us to admit that the human system by a law of its nature is constantly endeavoring to preserve the regular proportion of serum of the blood, except those which this hypothesis is invented to explain.—But if we admit their truth and give the advocates for such a doctrine all the benefit which they can derive from them, the obvious inference from the whole will be that dropsies are vicarious diseases, and generally depletion their appropriate remedy, neither of which things are within the limits of probability; it therefore proves too much. Moreover, upon the supposition that cathartics in dropsy acted in the manner above stated, it would be difficult to account for the fact that hydrothorax is rarely benefited by treatment with hydragogue medicines, though they are known to be in certain states of ascites and anasarca the most successful remedies—the same remark will also apply to hydrometra, ovarial dropsy and hydrocele: in fact the multiplied exceptions to the treatment which the doctrine inculcates, even in that class of these diseases in which they are proved to be most successful, sufficiently show that the explanation is erroneous.

The remarks of our author on the practical application of cathartics in the treatment of diseases are, as to points of practice, very just, and cannot fail to interest the junior members of the profession, whose opportunities of testing the virtues of medicines by their own experience, have not been sufficiently extensive to inspire them with confidence, though we think that Dr. E. betrays a partiality for the doctrines of the humoral pathologists scarcely to be expected from a writer of the year 1822: "Whatever," says he, "may be the original of fevers, whether seated in the bowels or elsewhere, it is *certain* that the secretions which are poured into the alimentary canal are, *perhaps* in almost every instance of fever, changed from their natural or healthy condition, to a state which renders them additional causes of irritation, to the already preternaturally excited system. Hence simply with a view to remove these additional supporters of febrile action, cathartics are important and indispensable throughout the whole course of nearly all acute diseases." If the doctrine here taught be true, we marvel much that Dr. E. should limit the application of it to acute diseases; it surely is as applicable to chronic ones, provided they be attended with fever, as to those of a decidedly inflammatory character; but this remark by the way—The author goes on to state "that the contents of the intestines must *necessarily* be more or less vitiated in all febrile diseases, but especially in the *low typhus fever*, is rendered certain, I think, not only from the actual appearance of the discharges themselves, but also from the necessary results of the suspended digestion and *morbid intestinal secretions* which occur in these fevers" and after quoting a remark from Dr. Armstrong, (which by the way savours strongly of the same doctrine,) and acknowledging its correctness, he proceeds, "it cannot be denied that the consequences here mentioned do sometimes follow the operation of the cathartics; but when

we reflect that the very circumstances of a hot and dry skin, an irritated pulse, *morbid function* of the intestinal exhalents, and irregular distributions to the head, liver, and other vital parts, are in reality produced by irritating matters in the intestines. It will appear evident, &c." and at page 116 treating of the use of cathartics in dysentery, he says "one of the first steps in its treatment, is to remove those irritating matters by the employment of such purgatives as produce a speedy and full action upon the bowels; and, *as the secretions which are poured into them are perhaps in all instances in a vitiated state*, these remedies must be *occasionally* employed thoughout the whole disease."

The reader cannot fail to observe from these specimens that Dr. Eberle is not only an advocate of the humoral pathology, but that he is so confident of its truth, as to think it wholly unnecessary to accompany his opinions with any thing which looks like testimony. If the doctrine were true unless indeed obviousiy so, we think his conduct would require some apology inasmuch as the book professes to be elementary; for nothing should find a place in a work of this kind which is not known to be fact, or which cannot be recognized by the reader as matter of rational inference from acknowledged truth; unless armed with the authority on which it rests: but when opinions are not only known to be controverted but to be in a good degree abandoned by their supporters, who are willing to qualify their creed by admitting the truth of principles which if carried out are presumed to be capable of explaining the phenomena of disease without their assistance; the omission is hardly explicable on any other ground than that of avoiding controversy; which is a reason by no means satisfatory in cases where the consequences involved in the discussion, are so vitally interresting as those which this question presents. Dr. E's. authorities on practical points are very numerous and very re-

spectable, though not always necessary, while the doctrine which pervades the whole is as destitute of proof as if the evidences of its truth were altogether superfluous. That in cases of fever the fluids may undergo changes no person will undertake to deny; that increased heat which is the consequence of a hurried respiration, and rapid circulation may and does vary their specific gravities; is an opinion perfectly consistent with the known laws of nature: but that the changes thus produced, are causes of disease we are by no means disposed to admit, without some evidence that their qualities are altered, or their constituents have entered into new combinations, which alone could render them mobific agents. We are well aware that such an effect as mere excess of heat will produce on the human fluids is not charged as the cause of all the changes which the humoral pathologists contend pass upon them in a state of disease, though it would be easy to show, that from the very nature of the case no other agent could be pressed into such service, without either incurring the hazard of defending the absurd position that chimical agency can consist with vital function, or maintaining the principle that the presence of fever necessarily involves an alteration of structure in all parts concerned in the production of morbid secretion.

We are not disposed in this place to enter into a laboured refutation of the doctrines which Dr. Eberle's book is calculated, perhaps intended to teach, although we feel ourselves obligated to record our unqualified disapprobation of the confident manner in which the subject is brought before the public; morbid secretions, putrescent tendencies, and vitiated fluids are terms as familiar to our author as though the truth of these things was not only unquestioned, but unquestionable, while it is as apparent as noon-day that the design of the whole book was to counteract the influence of a work bearing the same title, but teaching very different doctrines.

The book from the very nature of its subject addresses itself in a peculiar manner to the junior members of the medical profession; and it is of vital consequence that the opinions which they form in early life respecting the causes of disease, or the modus operandi of remedies should be correct, in order that they may not, in utter disgust with the philosophy of the science which they had been taught to believe capable to explain its various phenomena, become downright sceptics in theory and empirics in practice, to the discredit of their reputation as physicians, and the manifest injury of society, in after life. The humoral pathology, if it ever was cordially embraced as a theory, never was presumed by its authors to be adequate to explain the phenomena of diseases; and for the last fifty years it has rather been suffered, than indulged or cherished by the majority of those who availed themselves of its assistance in their pathological researches: and were it not that professional pride can receive as much support from perseverance in old error as from the propagation of new truth, it would long since have been consigned to that oblivion which its infancy promised, before it should attain its maturity. It is, notwithstanding, matter of surprise that it should continue to be viewed in some of our schools as the corner stone upon which all our pathological and therapeutic reasoning must be founded; the objections urged against it are not only numerous, but, taken individually, there is scarcely one which is not fatal to it. Let us take for example the dogma of putrescent tendency or putrid ferment of the blood, as presumed by the humorists to obtain in typhoid fevers; let us make an effort to believe, notwithstanding its manifest absurdity, that the fountain of life is poisoned at its source, and that too to such extent as to pervade the whole man, and demonstrate its effect upon the most distant parts of the human system; and that death is to

be attributed to the uncontrolled agency of this self manufactured poisonous virus; what should we expect, but that the body whose vitality was only able to resist its influence for a season, should now become the subject of instantaneous and rapid putrefaction? But what is the fact? Such bodies resist that process for a much longer time (all other things being equal) than the bodies of those who die by violence, without any previous disease! that this is true, no person will attempt to deny. What then is the inference? Marvelously strange, but still very natural; that the putrid ferment of the humoral pathologists is of such a peculiar character as to exert its influence only on animated and highly organized matter, to the exclusion of such as are destitute of these attributes: for its agency, however active during the progress of disease, is more completely suspended when death takes place in its own subjects, than it is, in cases where the same event has happened without the intervention of disease at all. How far a doctrine which will admit such an inference has claims upon the confidence of the medical public in the present improved state of the science, the reader is at liberty to judge. But the limits which we have assigned to this review forbid our pursuing this subject farther at present.

Dr. Eberle's remarks on the practical application of cathartics in fevers, are for the most part very judicious for we may observe by the way, that however his theory be warped by humoral notions, his remedies are directed to change the quantities of the circulating fluids, rather than their qualities and to remove the presumed causes of irritation; as appears from the following quotation.

"In no disease are catharties more decidedly beneficial than in dysentery. Such is the tenderness of the inflamed intestinal canal in this disease, that even its ordinary contents become a source of great and painful irritation One of the first steps, therefore, in its treatment, is to remove these irritating matters by the employment of such purgatives as produce a speedy and full action on the

bowels; and, as the secretions which are poured into them are, perhaps, in all instances in a vitiated state, these remedies must be occasionally employed throughout the whole disease."

The practical lesson which the following paragraph is intended to teach appears to us rather injudicious; for if there are any diseases whose successful treatment requires that they shall be treated without incurring the hazard of changing their character, they are those of which he speaks.

"In all the exanthematous fevers cathartics are very important remedies. Their beneficial operation in these diseases would seem, I think, to depend chiefly on their power of determining the circulation from the cutaneous to the intestinal capillaries. That the exanthemata are peculiarly characterized by strong morbid excitement in the cutaneous vessels, is perfectly obvious from the manifest character of these diseases themselves. It would, therefore, appear reasonable, *a priori*, to suppose that whatever is calculated to moderate the action of the vessels of the surface, is, by this effect, equally calculated to moderate the characteristic symptoms of these diseases. It is upon this principle that cold air and tepid ablutions act so beneficially in affections of this kind. Experience has taught us the fact, that an increased action of the vessels of the intestines, or an afflux of blood to these organs, is almost invariably attended by a simultaneous diminution in the action of the extreme vessels of the cuticular surface, or, in other words, by a partial desertion of the blood from these vessels, and *vice versa*.—Hence, sudorifics are useful in checking intestinal fluxes; and hence too, cathartics, by exciting intestinal exhalation, act beneficially in the exanthematous fevers. Undoubtedly, however, something is also to be ascribed to the mere removal of the irritating contents of the intestines, and to the *general* reduction of arterial excitement, which these remedies occasion."

We will pass over the next chapters on anthelmintics and antacids, for although they contain many interesting remarks, there is nothing that is particularly new, and come to the article *Tonics*, which our author defines to be "such medicines as impart vigour to the system without materially increasing either the heat of the body or the frequency of the pulse;"

the definition though short is hardly correct, as it is extremely doubtful whether the major part of this class of remedies are not calculated to have both these effects, to such extent at least, as to render them injurious whenever there is the least evidence of local inflammatory action. The manner in which they produce their remedial effects is thus stated by Dr. E.

The action of tonics, unless taken in very large doses, is not manifested by any immediate and obvious excitement. The vigour which they impart to the system, is the result of a slow operation on the animal economy, and altogether different in its character from that temporary augmentation of force which is the immediate consequence of the operation of stimulants, properly so called.

When tonic remedies are employed in a debilitated state of the system, their operation is evinced by a gradual and permanent increase of the force of the circulation; an invigoration of the digestive powers, and of the general energies of the animal economy.

There are three ways in which these remedies may produce their tonic effects on the system. 1. They may increase the strength of the system, by improving digestion, and thereby giving rise to a more abundant and healthy formation of chyle. That debility and disease may arise from an imperfection of the chyle, there cannot be the least doubt. Out of this fluid every other fluid and solid part of the system is ultimately formed; and we may, therefore, conclude that any deviation from its healthy state must interfere with the regular operations of the animal economy. It is evident, therefore, that whatever substance has the power of restoring the digestive energies of the stomach, and thereby the healthy condition of the chyle, will, by this effect alone, give health and vigour to the body. 2. Tonics may also impart tone to the system, by exciting a peculiar action in the part to which they are immediately applied, and thence propagating a similar action to the other parts of the body, through the medium of the nervous system. The effects of impressions on the stomach are often manifested in other parts of the body in an exceedingly violent and sudden manner. Debility, syncope, and even death are sometimes suddenly produced, simply by the action of indigestible food on a weak stomach. Seeing, therefore, such violent affections excited by articles that suddenly resist or prostrate the energies of the stomach, there is reason to believe, on the contrary, that whatever has a tendency to give vigour to this organ, will communicate a corresponding vigour to the general system. 3. Finally, tonics

may strengthen by being absorbed into the circulation, and by thus acting directly on the whole organization, through the medium of the blood. That remediate substances are carried into the circulation, is a fact which is, I trust, established by what has already been said on this head in the first chapter; and there can be no reason why a tonic substance absorbed into the circulation, should not produce the same invigorating impressions on the parts with which it comes in contact whilst circulating in the blood, as when applied to the surface of the stomach, the rectum, or skin. That they do in fact operate in this way, is further rendered probable by the new qualities which some of these substances impart to the urine and the other excretions.

The remarks on the particular application of tonics in certain diseases we think are rather too much in detail, as all the purposes for which they are intended might be just as well answered by laying down general directions for their exhibition; as their mode of operation however occult is always uniform, and particularly directed to increase the tonicity or contractility (terms almost convertible) of the muscular tissue. As a general rule Dr. E. justly observes that they are inadmissible in all cases where there still exists a phlogistic diathesis, notwithstanding previous depletion; though some exceptions are particularized, such for instance as Gout and Rheumatism, which by the way if closely examined, we have no doubt, will be found justly subjected to the general rule. In visceral obstructions we have no hesitancy in giving it as our opinion that tonics are calculated in all cases to increase the evil; in which we perceive we differ from Dr. E. who observes that "when visceral obstructions accompany intermittents, the bark is a remedy of *doubtful efficacy*. Respecting the propriety of the exhibition of tonic medicines in all the forms of fever so long as they are marked by any inflammatory character, there appears at present to be very little difference of opinion among physicians, for however much, some may have been disposed to permit their humoral notions to direct their treatment heretofore; it is

now a settled point of practice which numerous autopsic examinations have proved to be correct, that medicines of this class are utterly inadmissible in every form of fever bearing the sthenic character, or accompanied by local inflammation. This extensive application of the rule therefore obviously includes many diseases not necessarily febrile, but which can readily be made to take on that condition; it is therefore proper to use them with caution in all cases of scrophula, phthisis, dyspepsia, and many other diseases in which the system from slight causes may be excited into inflammatory action.

Less difficulty would be experienced by physicians in framing their plans of treatment, if they would not only bear in mind that diseases are frequently secondary, but that they are also frequently the results of local inflammation in some organ which must have escaped notice till the symptoms for which they are required to prescribe, have fully developed themselves. Recent discoveries respecting the nature of typhus fever have placed this position in a very interesting point of view, and it appears fairly inferrible from the observations of Broussais, that all fevers are symptomatic, and therefore secondary; having for their proximate cause local inflammation. The issues involved in this question if settled affirmatively are fatal to the interests of all theories claiming any kindred with the humoral pathology, and will work such a revolution in medical practice as to render superfluous a great variety of remedial articles whose mode of operation has to no purpose hitherto exercised the ingenuity of writers on materia medica: and as there can be no doubt that tonic medicines have been more abused, and their abuse attended with more irreparable consequences than any other; the treatment of febrile diseases in so far as they have been supposed to require their exhibition, cannot fail to be essentially improved by this new view of their pathology. That it

will be found to be substantially true we most sincerely believe, for the exceptions to its application are neither as numerous, nor inexplicable as those which attach to every other theory of fever.

Astringents and *Emmenagogues* occupy the next two chapters of our author and the view that he has taken of their operation, is consistent with those of the best authors on the subjects. We are decidedly of opinion with him that it is extremely doubtful whether there are any medicines so peculiarly operative on the uterine system, as to give them a claim to be classed as Emmenagogue. We know of no remedy (and by the way, the term hardly applies) except the *secale cornutum* which appears to exert a primary influence on the uterus and its appendages; and that cannot be considered as calculated to produce or favour menstrual evacuations. Its effects on the contrary so far as we are acquainted with them, would shew the propriety of its exhibition in uterine hemorrhage, for which it has in several instances been successfully resorted to. Every individual of the class of medicines to which the name has been applied, can with much propriety be arranged under the various heads of Cathartics, Diuretics, or Tonics, as their operation upon the uterine organs is in every case presumed to be intermediate or secondary.

It was our intention to have finished the analysis of this work in this number, but we have devoted so much room already to the consideration of the first volume, that we fear we might do injustice to the author by an attempt to crowd our observations on the remainder within the compass of this paper; we shall therefore reserve what we have to say on the various subjects of narcotics, antispasmodics, stimulants, diaphoretics &c, to another occasion. We trust that we have said enough already to give the reader a tolerable idea of the work, and we hope that it will lose none of the inter-

est which it is calculated to create, by being made the subject of our remarks. The whole book throughout displays much reading and reflection, though there is abundant reason to believe that the pathology which the author has embraced has no inconsiderable agency in controlling his opinions of the modus operandi of medicines, to an extent we fear which may render it extremely doubtful, whether the sound practical remarks in which it abounds, may not be more than countervailed by the theory, which without appearing to be its design, it seems peculiarly fitted to teach.

Histoire des Phlegmasies ou Inflammations Chroniques, fondee sur de Nouvelles Observations de Clinique et d'Anatomie Pathologique &c. &c.; Par F. J. V. Broussais, *chevalier de l'ordre royal de la legion d'Honneur; Medecin en chef et Premier Professeur a l'Hopital militaire d'Instruction de Paris; &c. &c. Troisieme Edition, revue et augmentee de notes. Vol. Trois. Paris,* 1822.

Examen des Doctrines Medicales et des systemes de Nosologie; Ouvrage dans lequel se trouve fondu l'Examen de la doctrine Medicale Generalement adoptee &c.; Precede de propositions Renfermant la substance de la Medicine Physiologique; Par F. J. V. Broussais, *Chevalier &c. &c. Vol. Deux. Paris,* 1821.

The medical productions of the last few years evidently surpass those of any preceding period in correct observation, legitimate deduction, and practical utility. They do not seem to depend for their value so much on framing plausible conjectures to account for effects arising from alleged causes, as in simply noting the various morbid phenomena, observing the læedentia and juvantia of the agents employed, and

by examination after death to ascertain the actual condition of the diseased organ. From this happy direction given to medical research, we anticipate the speedy overthrow of those systems which have served little other purpose than to give celebrity to particular schools and sects; and the establishment of medicine on such solid and enduring principles as shall take from it much of the reproach, which has so long adhered to it, of being merely a conjectural act.

The author of the works before us has, we think, contributed more than any other physician to bring about this great reformation. Placed under circumstances peculiarly favourable for an extensive observation of disease, and of its fatal ravages, he appears to have regarded the *mere* authority of opinion as of little value, and to have determined to observe each morbid phenomenon anew, and for himself, equally neglecting the artificial incumbrances of nosology, and the vain subtilties of the humoral pathology: and, it must be confessed, he has executed the task he proposed to himself, with an ardour, intrepidity, and ability worthy of the beneficial results which are likely to accrue from his well directed labours.

Several European Journalists have endeavoured to depreciate Broussais' merits, by accusing him of borrowing his principles from Rasori and Tommasini, but certainly without just foundation. We do not pretend to be extensively acquainted with the principles of the contra-stimulant doctrines of the Italian physicians; no work treating of them in detail having as yet reached us, but we are convinced from what we do know of them, that the relations which they bear to the Broussaisen doctrine are rather contingent coincidences, results deduced from different methods of investigation, and that many of their fundamental principles, much indeed of what now constitutes their peculiar character, must be discarded before they can claim to be the doctrines of the French physician.

Others again have thought to condemn in gross, the physiological medicine of Broussais, by stigmating it as downright Brunonism in new set phrase. There appears to be as little reason for this reproach as the former. No two systems can be more wide in their results; the one leads to an excessive, and almost constant use of stimulants and tonics; whilst the other, excepting in a few rare instances, would exclude these agents from the list of remedies; the one looks upon debility as the prevalent condition of disease, the other never loses sight of the constantly irritating or stimulant properties of nearly all the agents susceptible of injuring or destroying the healthy functions of the system. It is true Broussais has adopted Brown's definition of the simple and general phenomena of vitality. In doing which and applying it to explain the phenomena of morbid action, he has probably taken all that is really valuable in that celebrated system, and which served but too successfully to give currency to the fascinating pathology which was based on it. All else is new, and contradictory of Brown's system; for, while he makes two diseases or conditions of morbid action, Broussais allows but of one, and this fundamental discrepancy must instantly convince every one that the details of the two systems can afford but few points of analogy, and that they lead for the most part, to opposite theoretical and practical precepts. Brown's system is a system of pure hypothesis built on a few physiological truths; Broussais' the results obtained from a diligent clinical and autopsic observation of the organs affected; a simple enunciation of facts hardly amounting to theory and discarding all the ingenious resources of a theoretical medicine.—If these objectors, instead of accusing Broussais of vamping up old theories, or appropriating to himself the labours of his cotemporaries, would compare his doctrine with the practical precepts of Sydenham, Pringle, Cleghorn and authors of this stamp, they would discover the common ori-

gin of Broussais' principles and of the profound practical remarks of those authors, which have withstood the vicissitudes of medical hypothesis, and will be more esteemed as clinical observation, corrected by autopsic examinations, shall be more resorted to, as affording the only sure guide in practice, and the only enduring system of pathological science. Rush, more than any preceding writer, inculcated the necessity of discarding the scholastic and artificial incumbrances of nosology, and of founding our opinion of the nature of the disease, and of the treatment required on the state of the system and the symptoms present. Hence it is, that his works abound with practical observations that will be found to accord with Broussais' views; and he himself has been enabled to deduce more largely than any of his predecessors, principles which constitute an important part of the physiological medicine, and which are destined, under the generalizing and controling genius of Broussais to be incorporated into a system of doctrines, that will doubtless influence in no small degree the progress and character of medical science.

But it is not so much our intention on the present occasion to write a critique on the physiological doctrines of Broussais, as to present our readers with an abstract by which they may become acquainted with them, and be enabled to form their own judgment of their merits. For this purpose, we shall commence with his work on the *Chronic Phlegmasiæ*, a work which has been the foundation of his succeeding labours, and which would have conferred on him a very high rank among the contributors to medical science, had he rested his fame on this alone.

History of Chronic Phlegmasiæ.—The previous editions of this work treat of the various inflammatory affections of the respiratory and digestive organs, dwelling principally on those of a chronic character. To this edition the author has added, besides some additional matter chiefly in the form

of notes, to each of these affections, a succinct account of inflammations of the cerebral organ, of the liver, spleen, kidneys, and bladder. The descriptions, pathognomonic symptoms, &c. are drawn from the author's own observation of a great number of cases which fell under his care during their extensive prevalence in the French army in its campaigns in Holland, Germany, and Italy, for three consecutive years. Of these cases he has given with great minuteness of detail about one hundred and twenty, with the autopsic examination of such of them as proved fatal, which constitute by far the greater part of the recorded cases. The work is preceded by an introductory discourse in which the general principles of inflammation are discussed; the different characters which it assumes in the different structures of the system are shown; and the way in which the local affection influences the general system explained. Every increase of vital action in a part, sufficient to disturb its functions and disorganize its texture, is considered as a cause of inflammation. When the inflammation is seated in the arterial capillaries, in a part abundantly provided with them and endowed with considerable vital energy the symptoms are, pain, swelling, redness, and heat. This kind may proceed to resolution, suppuration, abcess, or simple ulceration, and finally, will in some instances terminate without producing other alteration than condensation and destruction of the cellular tissue. If the inflammation be protracted with diminished vital energy, the lymphatic capillaries become affected, when disorganization of the texture of the part is the consequence. When the inflammation is seated in arterial capillaries of less vital tone, and in parts not so abundantly furnished with them as the preceding kind, there is swelling, and redness, but the heat, and pain are usually wanting, and it runs its course with less rapidity than the former species. It terminates in resolution, gangrene, induration with lymphatic en-

gorgement, suppuration, or ulceration, and when the lymphatic capillaries become also affected, in corroding ulceration, as chancre, cancer, &c. When the inflammation is seated in the lymphatic capillaries, the swelling is the only constant symptom, sometimes there is redness and sometimes pain, but there is never any preternatural heat. It terminates when affecting glandular bodies, in resolution, induration, or suppuration affording a white tuberculous matter; when the cellular tissue is the structure affected, it is apt to degenerate into a cheesy suppuration, and in other cases to end in corroding ulceration, which is incurable unless the indurated parts are wholly destroyed. The disturbance of the general system from inflammation of a part is attributed to the pain and increased sensibility involving the rest of the system by means of sympathy. The hectic fever arises either from pain, when it is usually moderate; or from the absorption of pus, altered and vitiated by exposure to air, when it is usually more violent.

1. Pulmonic Inflammations.—Pulmonic inflammations are divided, according to the different structures of the organ affected, and the nature of the morbid action, into four kinds; 1st. when the mucous membrane is inflamed, it is called catarrh. 2d. when the parenchymatous substance, pneumony or peripneumony; 3d. when the serous membrane, pleurisy; 4th. when the inflammation of the parenchymatous substance runs into ulceration with destruction of parts, and implicates the lymphatic vessels, it is then to be considered as phthisis. The three first are denominated sanguineous inflammations, in contradistinction to the last, in which the lymphatic vessels are supposed to be materially interested.

Catarrh and Pneumony —*Causes.* The causes of these diseases are, 1st. external agents which act directly on the respiratory organs, as blows, falls, the inspiration of deleterious gases, foreign bodies, heated air, &c.; 2nd. internal

agents, which act directly on the organ and irritate it, as violent exertion of the lungs in loud speaking, running, impeding respiration in making violent efforts, &c; and 3d. external agents which act indirectly by forcing an undue quantity of blood on the lungs, as the application of cold to the surface of the body, taking cold drinks into the stomach, the rigors of fevers, the impressions of fear, terror, &c. The application of cold to the surface of the body acts also sympathetically by enfeebling the cutaneous function, and thus causing the pulmonary organ to perform a vicarious function to supply the deficiency.

Symptoms and Termination.—It is very difficult to trace the line of demarcation between catarrh and pneumony, because every violent catarrh is liable to become a pneumony, and when the former proves fatal is almost always complicated with the latter: yet, the primitive seat of the two affections will warrant their separation, and an endeavour to mark their distinguishing characters. When a person is seized with a chill, followed by dull, deep seated pain in the side, with dyspnœa, cough, mucous and bloody expectoration, fever, full pulse, &c. there can be no doubt that the sanguineous capillaries of the lungs are inflamed, and the disease is pneumony. If, after exposure to cold, a patient complains of tickling in the fauces and lungs, a distressing constriction of the thorax with feeling of fullness, coryza, cough, little or no pain of the chest except on coughing, and slight febrile symptoms, the disease may be considered a catarrh: but if, after two or three days, the pulse becomes irritated with increased heat of the skin, the inflammation has been propagated from the mucous membrane to the capillary tissue and produced consecutive pneumony. This secondary pneumony is not generally so violent as the primitive form, for the inflammatory irritation in these cases, is, as it were spent on the system of capillaries where it had commenced, which are less disposed

to high inflammatory action than the capillaries, which convey the blood for oxydation. Pneumony is sometimes complicated with pleurisy, phthisis, and fever. When gout, rheumatism, or other disease affects the lungs by metastasis, it almost always shows itself in the form of pneumony from the very commencement. When the constriction of the capillary arteries of the lungs is removed in pneumony, their extremities pour out into the bronchiæ a gelatinous albuminous fluid, a part of which is expectorated, and a part carried into the general circulation by the veins and absorbents of the part, and excreted by the skin and kidneys: thus the disease is terminated by resolution.—When the disease proves fatal in the first stage, it is always by producing induration or hepatization of the lungs, by distending and engorging with blood the capillary vessels, the cellular tissue, and even the bronchial cells, which quickly destroys the patient by suffocation when the whole organ is affected; but, when it is only partially so, and the disease is of a less violent character, the malady assumes a chronic form, gradually extending itself and impeding respiration more and more, till it finally destroys life. In those cases where the pulmonary inflammation has not been sufficiently violent to prove fatal in the acute stage, the disease may gradually subside and disappear, the robust constitution of the patient enabling him to overcome the disease by becoming habituated to the impressions that before irritated his respiratory organs; it may terminate into the chronic stage, maintained by the formation of tubercles, purulent collections, or an indurated or hepatic condition of the lungs; or the debility and irritation of the mucous membrane lining the bronchial and air cells, may induce purulent expectoration and hectic fever, which may prove fatal without producing ulceration of the part as has been proved by dissections.—As every catarrh is liable to become aggravated and converted into a pneumony, and every pneu-

mony to assume the chronic form, and terminate in chronic induration of the lungs, so, the causes which produce these diseases, may also produce this chronic affection directly without the intervention of an acute affection, which induration in its mode of production is not to be confounded with that induced by acute disease. The predisposition to this chronic induration of the lungs appears to arise principally from a feebleness of the pulmonary circulation in the capillaries, the facility with which the cutaneous function is suppressed, and from a varicose aneurismatic condition of the pulmonary capillaries and larger vessels, which is usually marked by habitual cough, dyspnœa, and purplish hue of countenance. Persons of the best habit of body may become the victims of this condition of the lungs, if they are attacked with pulmonic inflammation at a time when their constitution has become much enfeebled from any cause: indeed, every disease and deviation in regimen, contributes, by inducing debility, to render the effects of inflammation more violent and destructive.—Chronic induration of the parenchymatous substance of the lungs may occur without being attended with much constitutional disturbance, especially if irritating causes are carefully avoided; thus, we have reason to fear that the lungs are undergoing this alteration, if after a catarrhal affection that has been many times aggravated, or on the subsidence of the febrile symptoms of a pneumony that has not terminated in the accustomed time, the patient is left with a slight cough and some difficulty of breathing, which are increased at night or from any little unusual exertion, as ascending a stairs &c.; but appears to be otherwise in tolerable health, wholly insensible of his actual condition, and attends for a time to his ordinary occupations, until the gradual failure of his strength and the progress of his disease, obliges him to desist. At this time the physician remarks a slight acceleration of pulse with some heat, and flushness of

cheeks at night: the cough now becomes aggravated, in some instances, dry and rough, (*rapeuse*), in others, attended with expectoration, the countenance pale and yellowish or straw-coloured, the face puffy, the feet œdematous, with gradual sinking of the strength. The patient, nevertheless, under all these unfavourable circumstances does not lose his hopes of recovery, and, as his extreme feebleness does not permit him to take either exercise or nourishment, he remains tranquil and without suffering, and finally dies suddenly without agony, if every cause of excitement is withdrawn; but if on the contrary, he indulges his appetite and takes stimulants, this calm is interrupted by a febrile exacerbation of the symptoms of the acute form of pneumony, which soon destroys him. When this affection is well treated from the commencement, it often gradually diminishes and is finally removed insensibly and without any critical discharge.

Organic Alterations.—The parenchymatous substance of the lungs in these diseases exhibits after death the colour and consistence of the liver. There is often in the midst of this induration, some parts of the organ so soft and easily broken down in its texture, as to appear to be putrid. Very frequently, also, the pleura is found to have been implicated in the disease, from its being covered by a membranous exudation, and containing in its cavity a serous effusion.

Treatment.—Acute Stage.—The treatment of the acute stage of these diseases consists, in moderating the violence of the circulation by general and local blood-letting, by observing abstinence from food, and by the frequent use of diluent, mucilaginous, and slightly acidulous drinks; in favouring a determination to the skin by employing mild diaphoretic decoctions (powerful sudorifics seem to be injurious in this stage), keeping the patients warmly clad and confined in a warm, mild temperature; and in the violence of the disease, aiding the determination to the surface, by the external

application of emollients, and after the inflammation is somewhat abated, substituting rubefacients and blisters. As soon as the resolution of the disease is announced by the free expectoration of white thick matter, a light nourishing diet, such as farinaceous food and jellies, together with some mild tonic, not calculated to produce much excitement, are to be allowed. If the disease be complicated with an intermittent, the febrile paroxysms are to be suppressed as soon as possible, for they tend very greatly to aggravate the pulmonary affection by producing visceral congestion.

Chronic Stage.—If the treatment of catarrh or pneumony in the acute stage has been neglected, or proved insufficient, and the disease has assumed the chronic form, the indications of cure are—1st. To diminish the general susceptibility of the system, at the same time keeping the circulatory action as low as is consistent with the restoration of the strength. This is to be accomplished by obviating the action of cold and other exciting causes of the disease, maintaining rest of body and tranquility of mind, allowing light nourishing diet with a moderate use of mild tonics, and calming the irritation of the system by the use of diluents; together with the administration of opium, combined with some sudorific as ipecacuanha. And 2d, To excite action in, and favour the flow of fluids to, other organs and parts, especially the skin, by exhibiting mild sudorifics, guarding the surface by the use of flannel clothing next the skin, employing the warm bath, or, what is perhaps still preferable, the heated sand bath, giving diuretics, keeping the bowels moderately relaxed by the occasional use of minoratives, and producing external inflammation, and artifical discharges on the external parts of the thorax by blisters, setons, or issues. The latter, especially when made by the use of moxa, appear to be the most efficacious, and should be resorted to as soon as the disease puts on the chronic form.

Pleurisy—*Causes.*—All the causes which have been assigned to catarrh and pneumony, may also produce pleurisy, but some of them are more disposed to produce this disease than those affections; as a full plethoric habit, sanguineous temperament, a suppression of an habitual evacuation, a small capacity of the thorax with a disproportionate development of the circulatory organs, contusions and wounds of the thorax, violent agitations of the respiratory organ, produced by protracted paroxysms of severe cough, great efforts in loud speaking, and the convulsive agitations of the cold stage of fevers, or as induced by terror, fear, &c. These causes are most liable to produce the disease insidiously and in its chronic form; whilst the application of cold to the skin, or in the stomach is most prone to produce the disease suddenly and in its acute form.

Symptoms.—The *acute form* is ordinarily ushered in with a violent chill, followed by a pungent fixed pain in one or both sides of the thorax, dry painful cough, interrupted and painful respiration, hard pulse, and other symptoms of high excitement. If the whole surface of the pleura be inflamed, the patient complains of general soreness throughout the chest, and pains shooting in all directions. He is inclined to set up bending forward, keeping the chest as immoveable as possible, and breathing chiefly by the diaphragm; the countenance is greatly altered, with cheeks flushed and expressive of extreme anxiety. When the disease is complicated with pericarditis the patient complains of great precordial distress, is tormented with great anxiety and watchfulness, is apt to lie in a prone posture with the knees bent up under him, and is liable to attacks of lipothemy: There is also in these cases a want of febrile excitement, with the pulse small and feeble, and a deficiency of heat of skin. When the general symptoms run very high, and there is a deep red or venous flush of the cheeks, there is reason to apprehend that the

disease is complicated with pneumony. Simple acute pleurisy frequently yields suddenly and completely under active treatment, (resolution taking place by adhesions forming between the inflamed surface of the parts of the pleura that lie in contact); few diseases show so decidedly the influence of remedies. When it is protracted beyond the twenty-first day it is apt to induce organic lesion and run into the chronic form.

Chronic Pleurisy.—A neglected and protraced acute pleurisy is the most common source of this form of disease; but it also frequently arises insidiously, without having been preceded by any acute symptoms, from contusions of the thorax, concussions of the organ from various causes, as the rigors of intermittents, &c. The evidences of its formation are a soreness or increased sensibility of the chest, with irregular slight pains in different parts of it, especially on coughing, taking a full inspiration or using much exercise, dry cough, worse at night, and a pulse somewhat quickened. The patient will often continue in this state for a considerable time without losing in any very perceptible degree either his strength or natural fulness, until eventually, the supervention of other symptoms will leave no doubt of the nature of the disease, and its future termination. As the disease advances, effusion takes place into the cavity of the pleura; the pain of the chest increases, becomes more constant and general; and if the thorax be examined by percussion, it will be found to render a dull obtuse sound: if the disease be confined to one side, the patient lies with most ease on the side affected, whereas before the effusion took place he could lie with the most comfort on the opposite side. This simple form of chronic pleurisy often lasts beyond a year, the patient at last dying hydropic as from chronic catarrh; or he may gradually waste away with marasmus, with little pain or fever, and have his miserable existence extended to

two or three years. But, if the patient has experienced frequent returns of dyspnœa, suffocation, and fever; if his cough has been very severe and after being a long time dry now affords more or less expectoration; if the hectic fever becomes continued; cheeks of a purplish hue, and the emaciation rapid; there is reason to believe that the disease has involved the parenchymatous substance of the lungs, producing chronic induration or tubercles, caused, either by the spontaneous progress of the irritation, or by the effects of the pressure of the effused fluid. This complication of the disease is rapid in its progress; usually proving fatal in the course of two or three months. When the hectic fever runs high, the anxiety is considerable, the countenance rapidly altering, and all the excretions have become extremely fetid; there is doubtless a large purulent collection in the lungs, or an opening from the lungs into the cavity containing the effused fluid; for no condition of system can be more calculated to excite alarming and distressing symptoms than the absorption and irritation of effused matter, converted by the admission of air into a putrid irritating sanies. A person laboring under chronic pleurisy, either simple, or complicated with pneumony, and predisposed to affections of the heart, may be so harrassed with palpitations, and other signs of aneurism, arising from the pressure of the effused fluid on the heart, as to lead the practitioner to consider the lesion of this organ as the idiopathic affection; but the history of the disease from the commencement will show, that these symptoms have supervened on the pulmonary affection. When chronic pleurisy occurs without having been preceded by the acute stage, the pathognomonic symptoms are often very obscure and unsatisfactory, consisting chiefly of pain in the part, and the consequences arising from the effused fluids; and even these symptoms may fail to afford clear evidence of the nature of the malady; for the pain may be very slight, scarce-

ly marking so serious a lesion ; it may be general throughout the thorax, rather resembling a rheumatic affection of the muscles ; or, if seated more internally, be mistaken for a catarrh ; and the effusion may be moderate in quantity, and confined to the posterior and lowest part of the thoracic cavity, where the thickness of the integuments, perhaps their œdematous condition, and the neighbourhood of the abdominal viscera, may all concur to render the knowledge to be obtained by percussion, doubtful and uncertain. Under these embarrassing circumstances then, where even these indications fail, the practitioner may still be led to suspect a chronic pleurisy, from the patient having been teased for three or four months previously, with a chronic dry harsh cough, unattended with any expectoration, or at least very little, with no other febrile excitement excepting some quickness of pulse ; he at the same time exhibiting little alteration of countenance and maintaining pretty nearly his ordinary plumpness and strength ; and more especially if there be not conjoined with this condition any symptoms indicating disease of other organs. Chronic pleurisy besides being complicated with catarrh, pneumony, phthisis, and lesion of the circulatory organ of the pulmonary system ; will sometimes in severe and protracted cases, induce inflammation of the arachnoid membrane, sometimes inflammation of the peritoneum, and more frequently still, of the mucous membrane of the alimentary canal, producing colliquative diarrhœa.

Organic Alterations.—When an acute pleurisy terminates by resolution, the inflamed parts of the pleura that lie in contact form adhesions. If the patient perishes in the violence of the acute stage, the pleura is found highly injected, black or sphacelated, and covered with a thick membraneous exudation of a white or yellowish colour, its cavity containing a serous fluid resembling whey ; in some instances, pure liquid blood, in others, blood coagulated and containing fi-

broussubstances. If the disease had become chronic the serous effusion is in much larger quantity, more thickened, containing floculent caseous matter, the pleura greatly altered, thickened, tuberculous, often degenerated into a pultaceous matter, and containing cartilaginous or osseous substances. The lungs of the affected side are sometimes so wasted from the pressure of the enormous effusion, as to leave little trace of their existence. This pressure almost completely disorganizes their parenchymatous texture, producing tubercles, secondary inflammation with purulent abscess; or else causing disease of the lungs of the opposite side, which become highly injected with blood, inflamed, hardened, and greatly developed, so as to fill very exactly the containing cavity and be connected by adhesions to the costal pleura, unless the fluid accumulate very slowly, and the patient be of an unirritable phlegmatic habit, in which case the pleurisy may remain uncomplicated. When the affection has held a middle course between the acute and chronic forms of the disease; it is not unusual to find in the cavity of the pleura, membraneous productions of an organized fibrous texture, part of them detached and appearing to be undergoing dissolution in the surrounding fluid. Sometimes, though rarely, an effusion of blood and a gangrenous condition of the pleura are met with in chronic cases: but in such instances the disease has reassumed the acute character a short time before the fatal termination. When there is sphacelation of the pleura opening a communication between the lungs and cavity of the thorax, the pulmonary abscess has always been preceded by the effusion into the pleura; otherwise the progress of the abscess externally would cause adhesion of the pulmonary to the costal pleura, and the matter be discharged through the integuments. The effusion into the cavity of the pleura in these cases of perforation, allowing the admission of air, is always extremely fetid, a mere putrid sanies, which, as

has been observed, had produced before death by its irritating and deleterious qualities on being absorbed into the system, violent hectic fever and other alarming symptoms.

Treatment.—The treatment of pleurisy being very similar to that of pneumony, it is unnecessary to enter into much detail on it in this place: the peculiarities of treatment therefore will be chiefly dwelt upon. *The acute form.* Generally blood-letting appears to be less necessary in this disease than in pneumony, and is rather to be limited to cases where there is much plethora, or a very violent disease: the great dependence is on local bleeding, by leeching or scarifying over the affected part, carried to the extent of removing the pleuritic pain; applying warm emollient cataplasms over the thorax, which are generally productive of more decided advantage than the warm bath, or forcing a diaphoresis by active medicines; giving warm mucilaginous drinks; observing abstinence and maintaining the body as calm and tranquil as possible. Blisters over the pained part are generally thought peculiarly appropriate to this disease, and it must be confessed that they often suddenly and entirely dissipate the pain, but in some instances they only disguise it and produce a deceptive appearance of the subsidence of the disease; whilst from neglect of employing proper means, it is actually advancing towards a fatal termination, or laying the foundation of phthisis. This error is to be avoided by observing the other symptoms, and not relaxing the antiphlogistic means, so long as the dyspnœa, fever, and other symptoms remain. If, notwithstanding the continued use of antiphlogistic remedies, the cough remain obstinate and severe, and is kept up by a constant sense of tickling in the fauces and larynx, which mucilaginous drinks cannot allay; recourse must be had to opium, which, under such circumstances, is often productive of the best effects.

The Chronic form.—In proportion as a chronic pleurisy

is recent and presents the characters of the acute disease, the plan of treatment above detailed must be adopted. But if the disease in any stage of its progress is to be overcome, it is only by the persevering use of antiphlogistic means, varied according to the exigency of the case, and the capacity of the patient to bear them; by obliging the patient to observe great abstinence in diet; keeping him in a warm equal temperature, and clothed in flannel; applying leeches to the chest to remove pain or any febrile excitement that may exist; maintaining external irritation and drains on the chest, by blisters or issues; and supporting a gentle determination to the surface and other healthy organs by mild diaphoretics, warm bathing, frictions, diuretics, mild laxatives, &c. To evacuate the effused fluids by an operation, offers little or no chance of benefiting the patient: it would indeed almost always, only still further aggravate the disease; for the lungs are generally too much diseased, indurated and withered to allow them to dilate as the fluid was drawn off, and fill the space it occupied; and the atmospheric air which would replace the evacuated fluid would only tend to irritate the inflamed membrane.

Phthisis Pulmonalis.—This disease consists in an inflammation of the lungs, involving the lymphatic vessels of the organ and attended with ulceration. It is of two kinds, *Constitutional and Accidental.* It is considered to be constitutional when it occurs in a person predisposed from physical conformation, as slender habit, fair complexion, lax or weak muscular fibre, and relatively small capacity of thorax; and is induced by exciting causes scarcely appreciable, or, at any rate, by such a degree and continuance of them, as might be applied with impunity to persons not of this conformation of body. When the disease occurs in persons not particularly predisposed, from the operation of an exciting cause of considerable force and some continuance; or is brought on by

other complaints, particularly pulmonary disease, it is then said to be accidental, as the person would probably have escaped the disease had it not been for the severity or long continuance of the causes applied.

Causes.—Every inflammation of the sanguineous capillaries, whether in the form of catarrh, pneumony, or pleurisy, is liable from being protracted, to degenerate into phthisis, by involving the lymphatic vessels in the inflammatory irritation, and giving rise to the formation of tubercles, which invariably precede the ulcerative process, except perhaps in some few cases under very peculiar circumstances; as when the disease is produced by the lodgement in the pulmonary organ of a foreign body in a person little disposed to lymphatic indurations. Only one case of this kind has fallen under the author's observation. Other diseases besides those of the lungs, as fevers, suppressed hemorrhages, repelled eruptive diseases, gout, rheumatism, convulsive diseases, which in the violent agitations of the paroxysms force an excessive quantity of blood on the lungs, &c., may become the causes of phthisis, especially in such as have weak lungs, or where the cause acts with violence and for a considerable time. These causes all operate either directly or indirectly, in exciting undue action, and forcing too large a quantity of blood in the pulmonary organ, and are efficient in proportion as there is predisposition to lymphatic inflammation. Hœmoptysis is often the precursor of phthisis; but it does not produce the disease as, has been thought, by a rupture of the texture of the pulmonary organ degenerating into an ulcer: the hemorrhage itself arises from a mode of action of the sanguineous capillaries of the part, analogous to inflammatory irritation, and thus excites lymphatic inflammation and turbercles, in the same way as the more common inflammatory action of the sanguineous capillaries. Phthisis may supervene on scurvy, but the complication does not

seem to arise from any specific tendency of the scorbutic diathesis to produce lymphatic inflammations of the lungs: at any rate, as far as the author's observation extends, their combination is not of frequent occurrence. All the causes capable of exciting pulmonary inflammation, especially if their application be continued for a considerable time, are also causes of this disease; particularly where the transpiratory organ is weak, and its functions are easily deranged. The most frequent of these causes is the application of cold, but they all exert more or less power or agency in proportion as the lymphatic system is feeble, irritable and disposed to become inflamed.

Symptoms.—There is reason to fear the commencement of a phthisis, if any acute pneumony, catarrh or pleurisy is protracted beyond the 20th to the 30th day without any signs of a resolution, attended with high fever, great difficulty of breathing, a purplish hue of countenance and emaciation. We have reason to fear the supervention of phthisis when a chronic catarrh, or pleurisy becomes suddenly complicated with febrile symptoms, dyspnœa, paleness of countenance and emaciation; when after repeated attacks of pneumonic diseases, either in the form of pneumony, pleurisy, or catarrh; the febrile symptoms do not as heretofore subside, but continue attended with emaciation, paleness, debility, &c.; or when a person predisposed to phthisis becomes affected with a succession of catarrhs which finally induce quickness of pulse, hot skin, paleness of countenance, dyspnœa, emaciation, &c. When phthisis succeeds a violent pneumonic inflammation, it from the very commencement presents the most alarming symptoms, and may be properly designated as pneumonic phthisis, for it presents much of the character of the original affection: the fever runs high with a hard full pulse, paleness of visage with the lips and cheeks purplish, countenance haggard, flesh flabby, dyspnœa and

other symptoms announcing the speedy dissolution of the patient, often before marasmus has gone to much extent. Sometimes in these cases a bloody, blackish, granular and fetid expectoration, indicating disorganization of the lungs comes on; in other instances there is a real sphacelation of the organ, the patient becoming delirious, covered with cold sweats and presenting a frightful state of languor and distressing anxiety before dissolution. This form of phthisis is invariably fatal. That form of phthisis which is gradually developed by a chronic affection of the lungs, is denominated *Catarrhal* phthisis. It is slower in its progress, and its symptoms are of a less alarming character than the preceding form; although it is little under the influence of remedies. The emaciation, œdema, paleness of visage, and evening hectic, point out its true character and fatal termination. Its ordinary duration is from four to six months, or even longer, if the inflammatory irritation is not great, and there is little or no ulceration. This form may terminate by a general induration and tuberculated state of the lungs without suppuration, death being preceded by a few days of febrile excitement, or taking place suddenly from suffocation; or the tubercles may suppurate, when the patient is worn down and destroyed by the hectic fever and irritation caused by the absorption of the pus into the system.

Pleuritic phthisis may also terminate by hepatization of the lungs, without suppuration of the tubercles; or by suppuration with hectic fever arising from the absorption of pus. When it terminates in the former way the disease is more rapid and distressing in its progress, than it is in catarrhal phthisis undergoing this alteration of the lungs, here the lungs are compressed by a double cause, so that the disease frequently exhibits some of the symptoms of pneumonic phthisis. The absence of the purulent expectoration, and the slight degree of marasmus, will show that the hectic arises from

pain, and not from the absorption of matter. The duration of this form is very indeterminate. When phthisis arises from occupation, as inhaling habitually deleterious substances, &c. its character and form will depend on the constitutional predisposition of the subject, and the degree of irritation produced; and will assume the character of one of the preceding varieties, or that of constitutional phthisis according to circumstances. Neither will phthisis supervening on fevers differ essentially from the other kinds of phthisis; it will be more or less inflammatory from the same causes. Phthisis combined with scurvy, phthisis produced by cutaneous eruptions, by suppression of hemorrhages, or from convulsions accumulating the blood in the pulmonic tissue and augmenting the organic action of its vessels, presents the same character as phthisis arising from the other accidental causes of the disease.

Constitutional or spontaneous phthisis is of two kinds. The first is ushered in under the disguise of a catarrh, attended with more or less inflammatory symptoms, and succeeded by a moderate hectic fever arising from irritation (*hectique de douleur*). Providing that all causes calculated to produce excitement of the system be avoided, the disease will continue for some time without exhibiting any symptoms of great irritation; but finally as the tubercles become more developed and they suppurate, the ulcerated parts become the seat of greater irritation, pus is absorbed into the system, and a train of more violent symptoms ensues, such as profuse expectoration of purulent matter, colliquative diarrhœa, night sweats, rapid wasting of the flesh and strength, imperfect and painful digestion, inflammation and ulceration in parts that receive any undue pressure, as in lying, &c.; and the patient at length perishes in the extremest degree of emaciation in the course usually of six weeks, sometimes after fifteen to twenty days. This stage is seldom extended to three months. The second variety comes on very insidiously and is develop-

ed with extreme slowness, sometimes it is years before it is fully characterized, the irritative hectic (*hectique de douleur*) being so light as in some instances not to be indicated by the pulse; but the occasional flush of the cheeks, flashes of heat alternated with occasional chills, and the blanched appearance of the skin will suffice to inform the physician of the real character of the case. Even after the disease is considerably advanced, the cough continues for a long time violent, frequent and dry, or with a scanty mucous secretion attended with deep seated thoracic pain, dyspnœa and great debility of muscular power. The duration of this variety cannot be fixed with any certainty; it often continues for two and three years, especially in scrofulous subjects and irritable habits, when the accessary and inflammatory symptoms are mild in degree, or many of them wanting; as the colliquative sweats and diarrhœa, the febrile symptoms &c. There is a variety of phthisis arising from a scirrhous condition and enlargement of the lymphatic glands in the neighbourhood of the large branches of the bronchiæ, and in the mediastinum, which it is very difficult to discover and distinguish. The best diagnostics we at present possess are, the hoarse voice, the symptoms of an obstinate catarrh, and the obtuse sound rendered by percussion over the part.

Organic Alterations.—The lungs in violent inflammatory phthisis, which has been rapid in its progress, and quickly fatal, are generally found much engorged with blood, in a state of hepatization, containing innumerable tubercles, and irregular masses of tuberculous matter; in some parts, hard, in others, soft, pulpy and resembling a bloody putrid sanies. When the disease has been less inflammatory in its character, and of longer duration, the tubercles are generally larger, of a white colour and dry, or excavated and presenting an uneven tuberculated ulcerated surface covered with putrescent matter. Where chronic pleurisy has co-existed, the

appearances peculiar to that disease are also conjoined. When the phthisis has been of the slow dry apyrexic character, especially in lymphatic habits and persons endowed with little sensibility, the pulmonary tissue is found so filled in every part with tubercles and depositions of a caseous matter, as to appear to constitute the great mass of the organ. Sometimes the tubercles of this species contain osseous, cartilaginous, calcareous or stony concretions. Other organs besides the lungs often exhibit morbid appearances in this disease. In the violent inflammatory species a highly inflamed state of the mucous membrane of the stomach and intestines is sometimes met with; in the more chronic form of the disease, when there has been much suppuration, a thickened ulcerated condition of the coats of the intestines, particularly of the colon, together with a scirrhous state of the mesenteric glands. In the slow dry and apyrexic phthisis there is very generally a tuberculated condition of most of the abdominal viscera, often chronic peritonitis with purulent caseous deposition into its cavity. The parenchymatous substance of the brain has never been found tuberculated in this disease, but its serous membranes are sometimes affected; sometimes there is a gelatino-albuminous fluid poured out into the ventricles, in other instances, the arachnoid membrane is thickened, and rendered opaque.

Treatment.—The principles of treatment are very similar to those laid down for the treatment of the other chronic inflammations of the pulmonary organ. The great object to be kept in view is the destruction of the inflammatory erethrism, by the employment of antiphlogistics; the chief of which are local and general bloodletting, and low diet. Blood-letting is the remedy *par excellence* in this disease, and is to be resorted to as long as the symptoms, especially the pulse, indicate inflammatory irritation, and the condition of the system will at all admit of it. The diet at the

same time should be of the lightest and least stimulant kind, entirely vegetable, and limited in quantity, so that the patient shall never completely satisfy his hunger. The best perhaps is milk and bread, say a quart of the former and two to four ounces of the latter daily. Animal broths, and jellies are only to be allowed when the wasting caused by the expectoration, and the extreme debility, indicate the necessity of nourishing the patient. The drinks are to be mucilaginous, saccharine, or acidulated, of a diluent, refrigerant quality, to which may be added a small quantity of some antimonial preparation, nitre, or laudanum according to circumstances: they should also be warm in winter, and cool in summer. In the the second stage of disease, where there is much cough and expectoration, laudanum may be given more freely than in the first, especially at night, and some slight aromatic, as orange water, ether, or oxymel of squills, may be advantageously added to the drinks. As soon as the arterial activity is abated we should endeavour to solicit the fluids to the surface of the body by applying to the chest warm emollient cataplasms, fomentations, or covering the part with flannels or animal skins. Warm bathing is a more doubtful remedy in this stage of the disease, as tending to produce fullness and oppression, but may be sometimes tried. After the inflammatory excitement is allayed, or very much diminished, rubefacients and blisters over the part affected are of signal service, as are setons, issues, and moxas in the apyrexic state; and also excitation of the cutaneous capillaries by frictions, warm bathing, and the heated sand bath. Formerly some dependance was placed on the employment of mercurial preparations, muriate of barytes, sulphur, the balsams, mineral waters, cicuta, belladona, &c. for the resolution of the tubercles; but they do not seem to possess any power of this kind, and are, moreover, frequently injurious by their stimulant properties. The resolution of the tuber-

cies will be most likely to be obtained by the persevering use of the remedies above detailed, particularly by the counter-irritation of blisters, issues, setons, moxas, &c. In the *third* and last stage the treatment is entirely palliative. Anodynes are to be given at night to allay the cough; mucilaginous decoctions, and light diet to moderate the colliquative diarrhœa; jellies and light nutritious diet to support the strength; and slightly astringent and acidulated drinks, and keeping the patient cool and in an airy apartment, to restrain the profuse sweats.

(To be continued.)

COLLECTANEA CLINICA.

Cases tending to confirm the doctrine of J. E. Pritchard, M. D. in his late and valuable work on nervous diseases, respecting the existence of a closer connection in that class of diseases than Physicians and Physiologists usually suppose.—By Dr. C. C. Blatchly, *of New-York.*

CASE I.—EPILEPSY, HYSTERIA, CATAPHORA, AND CHILDISH INSANITY.

The subject of these remarks at the commencement of her period of menstruation was attacked with epsilepsy; by depletion the disease appeared to be transformed into hysteria. As it abated, she was affected with catalepsy and alternations of insanity and rationality. These affections were treated with venesection and other evacuations, epispastics and emmenagogues in the earlier part of her complaint; and afterwards with antispasmodics, chalybeates, hellibore, copper, &c. after a long period of suffering she recovered tolerable health, and has long been a married woman; but

without issue. Her cataphora appeared to me to be a mild kind of hysteria, she was not convulsed in it; yet she was stiffened and insensible; she did not swoon, yet she did not seem to breathe. The pulsations of her heart continued, and she remained in the posture in which she was attacked, or was afterwards placed. The attack was sudden; and it continued for sometime, and as suddenly disappeared; if she was sane before an attack, she was insane after it, and if insane before a fit, she was sane after it: In her insanity she thought, talked and acted like a silly sportive child; in her insane states she remembered nothing that was said or done, in times of rationality, but remembered what was done in her states of insanity: In her sane states she remembered nothing that was said or done in the paroxisms of her childishness: but she remembered what was said or done in her periods of rationality. Sometimes her rational, and sometimes her childish states would continue twelve, and at others twenty-four hours—when insane she was like a maniac, very sleepless at night. Thus she appeared like one having two kinds of existence or consciousness.

The abatement of epilepsy in this case was followed by hysteria; hysteria by cataphora, and cataphora by childish simplicity and health.

CASE II.—EPILEPSY, AND HEMIPHEGY APPROACHING APOPLEXY.

In 12 mo. of 1822, I was called late at night to visit ——— ———, a married woman, who for a long time had not lived with her husband. She had hysteria. I bled her; gave her an emetic, and prescribed an epispastic and a pedeluvium. On visiting her next morning, I found that the emetic had operated and removed the convulsions for about two hours; after which they returned with violence. The eyes were stationary and the tunica albuginea reddened; one side of

the body seemed paralized and the other stiffened by tonic or tetanic spasms. I was alarmed, for I had attended her in the spring previous, with my Nephew, Dr. Ebenezer S. Blatchy, in a case of hemiplegy, which was followed by a miscarriage. By venesection and other evacuants, epispastics and sudorifics, she at that time soon recovered. I now desired my nephew to see her with me. Our opinions were, that her hysteria was now increased to epilepsy, which was closely approaching to hemiplegy, and almost to apoplexy; pulse full, hard, and slow.

We bled her copiously; prescribed cathartics, enemata, epispastics, &c. but she died, with symptoms of apoplexy, before night. As health returned by a decrease in the violence of nervous symptoms in the first case; so death followed an increase of them in this case. I am inclined to believe that anguish of mind caused each of her severe attacks.

Case of Hemiplegia, treated by nux vomica, by John Baxter, M. D. of New-York.

The small number of cases of this disease usually cured, and the still smaller number in which the nux vomica has been exhibited with success, induces me to give publicity to this, that a fair trial may be made, and its real value and powers fully ascertained. The varieties of this disease are numerous, the case under consideration was the result of febrile commotion, which variety has been said to be merely a symptom of, and ceases with the fever; this however was not the case in the present instance. It occurred in a child 3 1-2 years old, while labouring under Rubeola, the fever of which was very high, attended with delirium, pain in the head, a full and frequent pulse, with a peculiar affection of the eyelids; which symptoms by active depletion and anti-

phlogistic regimen, abated: but as they abated, a slight paralysis, which was just perceptible at the height of the fever, became augmented, so that on the fifth day of the fever, the child was totally incapable of motion in any of the muscles of the right side, which was also insensible, flabby, and of a lower temperature than in health.

No use could be made of either the arm or leg of that side, while the other appeared in perfect health, if the child was placed on its feet it would fall to the ground, if not supported by some attendant—a slight voluntary motion appeared in two fingers of that side, and a soreness or pain on hard pressure along the lower limb.

The face was much swelled and there was a purulent discharge from the right ear and nostril, but the face did not seem to be at all affected by paralysis. Friction and warm fomentations of vinegar were ordered to the diseased side: some febrile excitement which remained was removed by purging and diaphoretic powders, while the paralysis continued unrelieved until the 10th day, when a secondary attack of fever occurred with a very hot and dry skin, which was covered with the eruption of measles.

The Hemiplegia continued unabated the tongue being now affected so as to impede the speech and render it difficult to be comprehended.

The hot hip bath was ordered, in which some soap was dissolved, and a diaphoretic powder, which produced a profuse perspiration, and quiet sleep at night, leaving on the 11th day great debility; the swelling of the face and extremities entirely subsided; but the paralysis was unabated.

Ordered now a fomentation of warm spirits, to the paralytic side, a powder of six grains of Rad: Rhei; decoction of serpentaria for constant drink, and half a grain of nux vomica every 4 hours.

On the 12th day all the bad symptoms abated, but the he-

miplegia remained unaltered, and the child could not move itself without assistance—commenced taking the nux vomica, which produced about three hours after the second dose, universal tetanic convulsions, the hand of the paralytic side was clenched, as well as the other, the arm drawn up, the lower extremities also contracted, beside which an effect similar to that of inebriation was produced, the child being much excited and very good natured; these effects lasted from one to two hours.

On the 15th day, the right side had become firmer, some action was perceptible in the limbs; and the general health was much improved. The medicine was continued in the same dose morning and night, and to prevent constipating effects six grains of rhubarb were again ordered, together with serpentaria to restore the yet deficient strength.

20th day—No other medicine than the nux vomica has been given for the last few days, and the child walks by supporting itself against any thing in its way.

26th day—The medicine has been continued once a day, for the last five days and the child has now the perfect use of the right side, and walks very well without support, though with rather more than ordinary caution and hesitation. The medicine was now discontinued.

Thus, on the second day after commencing with the nux vomica, its good effects became apparent; on the ninth day the malady was so far removed as to enable the patient to walk, and on the fifteenth the use of the affected side almost entirely restored, and the medicine no longer rendered necessary; giving one more instance not only of the powerful but beneficial effects of this remedy upon the human system.

I have but two remarks further to make upon this case, viz.—That the paralytic symptoms which were evidently the effect of the high febrile excitement of the measles did not subside with the subsidence of the fever but increased;

so that although the hemiplegia might have originated from pressure of the excited vessels in the brain; we have no reason to suppose that it was continued by such a state of vessels, but more probably from the exhaustion, which the previous increased excitement produced.

2ndly.—Mons. Fouquier who first made a practical use of this drug, has asserted that the spasmodic contractions are alone produced on the paralytic muscles; leaving those of the healthy side unaffected. In this case its effects were alike sensible on both sides.

The powerful effects of the nux vomica have been oftener observed than its remedial virtues, but that total relief of the hemiplegia was obtained in this case by it, I cannot doubt.

If the treatment of this case should induce Physicians to make further and successful trial of the remedy, this recital will have served the intentions of the writer.

Case of Superfœtation.

GENTLEMEN—The following case of superfœtation occurred in my practice some time since, if you think it worthy of record you are at liberty to publish it. The fact of superfœtation has always been the subject of controversy, and to this hour it is not considered as a settled question. Those cases which have heretofore been published have been explained on the supposition that where they have occurred there has been a double set of uterine organs, or at least such a peculiar conformation of them as to permit the children to be lodged in separate uteri. I have not been able to ascertain whether such unnatural structure existed in the following case, but I am inclined to think it did not. When more fully informed on this subject I will make it the subject of another communication.

Yours very respectfully,

F. W. NORTON.

On the 20th April, 1823, I was called to visit Mary Johnson, a colored woman, of a robust and healthy constitution; 24 years of age, who had been in labour about two hours before my arrival, and just then was delivered of a black child, which from its appearance (with which her own account corresponded) was born about one month too soon. I immediately tied and divided the umbilical cord and removed the child, which lived about two hours. The cause of its death I could not ascertain, but I satisfied myself that it was not the result of injury or compression. The placenta was retained, and from an examination by the cord, appeared to be firmly attached to the uterus. The patient complained of no pain, nor had her labour at any time been severe. There was no hæmorrhage; her pulse was full, slow, and regular, and her strength was but little impaired: warm teas were given to her, and fomentations were applied to the region of the abdomen, in order to invite some uterine action; she still continued easy, and betrayed no anxiety on her own account, but much for the life of the infant, of which she had just been delivered. On attempting to introduce my hand I found the vagina too much contracted to admit a satisfactory examination for the placenta, without occasioning great pain, and therefore withdrew it; after having suffered six hours to elapse, and seeing no prospect of a speedy sepation of the placenta, I left the patient and consulted Dr. John Stearns, who advised the exhibition of the *secale cornutum*; I accordingly gave it by infusion in the ordinary doses, which soon produced the desired effect; but while expecting the placenta to be expelled, I was surprised to witness a discharge of water, and immediately afterwards there came away a perfect white and well formed fœtus, apparently of the age of four months. I separated it from its attachment, and it showed some signs of life. The placenta was afterwards removed without difficulty, and the patient

soon recovered her usual health. The fœtuses I have preserved; they have been examined by many Physicians in this city, and they are so perfectly distinct in color, size, and maturity of parts and appearance, that there can remain no doubt on the mind of any enlightened physician, who would examine them, that they were conceived at different times, with an interval of at least four months; and as little, that they are the offspring of two fathers, the first a black, and the second a white man.

The following note from Dr. Stearns, was inclosed in the communication from Dr. Norton, and we have his permission to publish it. Ed.

NEW-YORK, JULY 24, 1823.

As I was consulted in the preceding case, I had an opportunity of examining the fœtuses soon after their birth, and before they had experienced any material change. The facts which I witnessed perfectly corresponded with Dr. Norton's statement; and from his reputation for veracity, I have no hesitation in giving entire credit to his representation of those which I did not witness. This extraordinary case certainly deserves a place in our public records, and will I trust lead to an anatomical investigation of the uterine system in which the two conceptions have occurred: such investigations may decide the question, whether the uterus in its natural state can ever admit of superfœtation.

JOHN STEARNS.

INTELLIGENCE.

The Yellow Fever of Barcelona in 1821.

Excepting a limited prevalence in 1803, Barcelona had been wholly excepted from the ravages of yellow fever until the summer of 1821, when it appeared in a most malignant form and was very fatal in its effects. It commenced in the last week in August and continued till the second week of December, and is computed to have destroyed from 17 to 18 thousand of the 70,000 (something less than half of the ordinary population) that remained in the town. The disease appears to have commenced in the shipping and dwellings in their immediate vicinity, and to have been chiefly confined to the low crowded parts of the town adjoining the harbour; the more elevated, airy, and distant parts in a great measure escaping its ravages. All the accounts we have read, seem to agree that the fever was of a putrid type, rapid in its progress, proving fatal on the 2d or 3d day, and exhibiting on dissection but slight traces of inflammatory lesion. The physicians differed in opinion on the origin and mode of propagation of the disease. Many of the Spanish Physicians together with all the members of the medical commission excepting one, who were sent by the French Government to investigate the nature of the disease, attribute it to a foreign source, importation from the Havana; and to have been propagated by personal contagion. On the other hand a very respectable proportion of the Spanish Physicians, with two French and one English physician (M'Lean) have presented a report on the epidemic to the Spanish government in which they dissent from these doctrines, and allege the disease to have been local in its origin, and void of any contagious quality. They

notice the inability of their opponents to designate the vessel that brought the contagious matter; as the circumstances that attended those, which have been resorted to for that purpose, render it highly improbable that they should have been the importers of the mischief; and that in fact the first case of the fever occurred on board a vessel that had been in port for four months, and had not come from the Havana. They believe the disease to have been produced by the putrid effluvia arising from the great mass of filth that was suffered by a negligent police, to accumulate in the sewers, canals, and harbour of the town; by the outlet of the harbour becoming obstructed by a sand bank which prevented it from being wafted into the sea. In no instance they assert was the disease communicated to the inhabitants of the neighbouring country, although numbers affected with the disease, or who were attacked after leaving the town, took refuge among them; neither was there any reason to believe that of the numerous nurses employed in the hospitals, any contracted the fever from attending upon the patients.

Dilatation of the Female Urethra.

There is a very general prejudice generated in the human mind against the knife, where other means though more slow and painful, offer a chance of success. It is very praiseworthy in Sir Astley Cooper, whose dexterity with cutting instruments is well ascertained, to exercise his invention in superseding on some occasions, the very instruments by which he has gained so much of his celebrity. The dilatability of the female urethra has been proved by papers from the pen of Mr. Travers, and Sir Astley himself. The latter has here endeavoured to show a better means of producing this dilitation, than by the introduction of sponge tents, which is liable to the objection of requiring several hours of pain and retention of urine while lying in the meatus. This inconvenience suggested to Sir

Astley the utility of an instrument constructed on the plan of a speculum ani, to enlarge the urethra, which could have the advantage of permitting the urine to escape meanwhile. An opportunity was soon afforded in the case of Mrs. M'C, a lady who had for six months been labouring under extreme irritability of the bladder, and such pain and difficulty in making water, as induced suspicion of stone. On examination, stone was discovered, and Mr. Weiss of the Strand, quickly constructed an instrument which answered the purpose, and an engraving of which is given. On the 7th of January, 1822, Sir Astley, in the presence of Dr. Nutall and Mr. M'Nab, introduced the dilator at eight o'clock in the morning. At four P. M. Sir Astley removed the instrument and readily felt the stone with his finger; the forceps were introduced and the stone extracted. For a few days after the operation the patient experienced a severe attack of irritative fever which was subdued by the usual antiphlogistic means, and our author had the pleasure of seeing his patient gradually restored to health, having never lost the power of retaining her urine.

From the facility with which the meatus dilated, Sir Astley thinks there was no absolute necessity for allowing the dilator to remain so long in the passage, and is therefore determined in future to use the dilator for a few minutes only.

[*Medico Chirurgical Review.*

Diabetes Mellitus.

Dr. Heineken, of Madeira, has published a case of diabetes mellitus in our respected cotemporary, where the patient had fallen away, from being robust, to a state of great emaciation. He was passing eight or ten quarts of urine daily of a sacharine quality, and had the usual symptoms of diabetes. The following pills were ordered;—pulv scammon. ℈j. pulv. opii, ℈j. hydr. submur, gr.

v. ant. tart. gr. ij: To be made into twelve pills; one to be taken three times a day. A warm bath every night, the chest, arms, and abdomen, to be rubbed well with sweet oil every morning. The food to be entirely animal. This treatment, with little variation, was continued from the 3d of June to the 17th July, when it was noted that the patient perspires freely, that the urine is healthy, that the quantity is about three quarts daily. A nearly similar mode of treatment, however, was continued till the 8th of October, when he was considered as cured. That quantity of solid opium taken during the treatment was about six hundred grains; and during eight days of that time, he took fifteen grains daily. [*Medico Chirurgical Review.*

Mercury in Acute Diseases.

It has been very erroneously considered that the free exhibition of mercury in fevers, dysenteries, and acute inflammations, is a new and dangerous practice, principally derived from the medical men of hot climates. In the 7th volume of the "Medical Facts and Observations," there is a communication from Dr. Wright, dated 1794, showing that the practice had been common with him and others ever since the year 1760, that is, 60 years ago. He shows that Dr. Smith, a physician at Savannah le Mar, was in the habit of giving calomel *in scruple doses* in acute diseases, with great success.

In respect to dysenteries, Dr. Wright's words are these.

In dysenteries, where the fever has been considerable, the tongue dry and parched, the gripes severe, and the stools very frequent, with scarcely any thing else, than blood and mucus, I have prescribed with good effect calomel in doses of five grains every six hours, till a copious stool or two have been procured; and afterwards in smaller doses, with occasional opiates, while the fever and gripes have continued.

Extended experience in various climates has confirmed the practice of Dr. Wright, while a correct pathology of the disease has shewn the propriety of local and general bleeding, to secure the mucous membrane of the intestines from the disorganizing effects of inflammation.

Medico Chirurgical Review.

Rheumatic Metastasis.

We have long been convinced, from attentive observation, that the system of detracting large quantities of blood in cases of acute rheumatism, is productive of more frequent metastasis from the extremities to internal organs, than a more moderate mode of treatment. In the first place, acute rheumatism is not to be controlled by large and decisive bleedings, like common inflammations in other structures, as the lungs, &c. And in the second place, if we do quell the external inflammation suddenly by copious depletion, it is but too apt to take place ; of this we have seen several instances. In the following case, however, the disease was extended rather than translated to the heart, as the latter organ became affected before the rheumatism left the joints. Indeed it appears that the disease kept possession of the original seat till the last.

On the 7th November a private soldier, young, of slender form, and delicate complexion, was admitted into the regimental hospital of the foot-guards, labouring under acute rheumatism of the superior extremities, characterized by the usual symptoms, as violent pyrexia, full hard pulse, great thirst, furred tongue, and constipated bowels. Twenty-four ounces of blood from the arm in a full stream—a brisk cathartic,—fever diet. 8th. No alleviation of symptoms, again bled to twenty-four ounces, and a quarter of a grain of tartarized antimony to be taken every three hours. 9th. Symp-

toms a little milder, but still urgent. The antimonial continued, and 12 grs. of Dover's powder to be taken at bed time. 10th. Cough, the pain in the joints, and the fever being still undiminished; a brisk cathartic of calomel and colocynth. 11th. To the cough was added pain in the region of the heart. He was again bled, and the tartarized antimony continued. 12th. The heart and arteries evinced great action, and 40 ounces of blood were abstracted, without producing syncope, or making much impression on the pulse, antimonials continued. 13th. Cough and pain in the region of the heart increased. Digitalis added to the antimony. On the evening of this day, for the first time, thirty-six leeches were applied to the region of the heart, and the digitalis increased. 14th. He died. On dissection, the heart was found enlarged in size, and the surface every where covered wtih coagulable lymph.

We would hazard a remark or two on the above case.

We think local bleeding was not employed early enough, when the thoracic inflammation became developed, and we do not observe that blisters were employed at all. In the second place we conceive, (from witnessing such things on similar occasions) that there was time to introduce mercury sufficiently into the system, after the sanguineous depletion, so as to have arrested the inflammation not only of the joints but of the heart. [*Medico Chirurgical Review.*

On the Xanthoopia of Jaundiced Persons.

The Xanthoopia of jaundiced persons, (says M. Blumenbach,) seems to be in this condition, that it supposes, at first, a yellowish tinge, in the pellucid media which transmit the rays of light, especially of the aqueous humour and crystalline lens: then a not so gentle, but more sudden attack or increase of the disease: and lastly, both a vivid perception

in the sensorium and application of the mind. But as these seldom happen at once in icterus, we can easily comprehend why very few patients in that disease complain of the yellow tint of objects. On the contrary, I know a lady of excellent talents and accomplishments, who, on a sudden and severe attack of icterus, saw at first linen of all kinds of a livid or dusky hue, as if it had been ill washed. But those upon whom the disease seizes slowly, advancing as it were step by step, no more experience this yellow hue of objects than old people do, in whom we have known the crystalline lens become livid in very advanced age. Should this tinge take place in one eye only, the other remaining uncontaminated, that diversity of colour in white and shining objects would be no less easy of observation than in patients, who after depression of cataract, see the objects, (from the use of sulphate of copper applied to the diseased eye,) on which they look with it, of a colour sometimes verging toward blue.

And a somewhat similar vitiation of sight is known to take place in those who have for a long time kept one eye applied to dioptrical instruments. Thus the celebrated philosopher James Rohault after looking without interruption for twelve hours at a distant battle, by means of a telescope, from that time forth saw every object with his right eye which he had here fatigued so much, of a different colour from what it had when viewed with the left: and the same circumstance happened to myself, after being assiduously employed for several days in making observations with a compound microscope.

[*Edinb. Phil. Journal.*

PHYSIOLOGY.

Motions of the Eye.—A paper, in illustration of the uses of the muscles connected with the eye ball, was lately communicated to the Royal Society by Mr. Charles Bell.

The object of these inquiries is to show that certain motions are performed by the eye which have not hitherto been described. Thus every time the eyelids are brought together to cover the globe, the eye turns upwards; without which motion it would not be properly moistened, nor the particles of dust removed from its surface. Next it is shown that during sleep, the ball is turned up so as to lodge under the superior palpebra.

These movements are rapid and involuntary, while others are under the government of the will, and for the purpose of directing the eye to different objects. Both the oblique and straight muscles have been regarded as voluntary: but Mr. Bell maintains that the oblique are for the performance of the insensible motions, and the recti muscles for those under the command of volition.

According to this view, we are enabled to judge of the distance and relative position of objects by the consciousness we have of the action of the straight muscles. A further inference is, that the functions of these muscles are connected inseparably with the state of the retina, being active only so long as the sense of vision is in activity: when this ceases to act, the oblique muscles come into play and draw the pupil upwards, beneath the upper eye-lid. Hence that turning of the eye-ball which we witness in sleep, in fainting, or in death, is but the indication of insensibility. In another paper the author proposes to explain the uses of the numerous nerves going to the orbit, on the principles of the foregoing remarks.

[*London Medical and Physical Journal.*

Double Uterus and Vagina.

Dr. Tiedman communicates a very remarkable case of the above description, the preparation of which is to be found in the Museum of Heidelberg.

In this individual the vagina and uterus were found both to be double, the latter of which was distended from impregnation. The left uterus was in the condition as it usually is after delivery, the person from whom the preparation was taken having died on the nineteenth day after parturition: the right uterus had all the appearances which those that have never borne children usually possess.

In the same communication the author alludes to two similar cases, which he had himself met with on former occasions. *Med. Chirurg. Zeitung.*

Danger of Interments in Large Cities.

William B. Gilley has just published a work entitled an "Exposition of the dangers of interments in large cities; illustrated by an account of the funeral rites and customs of the Hebrews, Greeks, Romans, and Primitive Christians; by ancient and modern ecclesiastical cannons, civil statutes and municipal regulations; and by chemical and physical principles—chiefly from the works of Vicq. D'Azyr of France, and Prof. Scipione Piatolli, of Modena; with additions by Felix Pascalis M. D. &c. &c.

In this work Dr. P. recommends a *Polyandrium* or general Cemetery at a distance from the city, and the erection in the way to it of *Luctuaries* or dead houses, where the bodies of the dead may be deposited temporarily previous to their final interment—he also recommends that permission be granted to the friends of the deceased, to burn the bodies of the dead, and instances the society of friends as models for our imitation in all matters relating to this subject; they never inter their friends within large cities, but remove their grave grounds beyond their precincts. Dr. Pascalis also recommends that the Polyandrium be inclosed by a high wall under which the erection of vaults may be permitted. Without

offering any opinion on the merits of the great question which it particularly discusses, we would recommend its perusal to every person who wishes to inform himself on the subject which it treats, and can assure them that the time spent in its perusal, will be well employed.

Officers of the New-York State Medical Society.

At the last anniversary meeting of the New York State Medical Society, held at the Capitol in the city of Albany, the following gentlemen were elected its officers, viz:

Dr. Alexander Coventry, Oneida, *President.*
John H. Steele, Saratoga, *Vice-President.*
Charles D. Townsend, Albany, *Secretary.*
Jonathan Eights, do. *Treasurer.*

CENSORS.

Dr. Felix Pascalis,
James R. Manley,
Charles Drake, } Southern District.

William Bay,
T. R. Beck,
Peter Wendell, } Middle District.

Abram Allen,
Daniel Ayres,
Trueman B. Hicks, } Eastern District.

Laurens Hull,
Erastus D. Tuttle.
Luther Guitteau, } Western District.

Amos G. Hull,
Erastus D. Tuttle,
Westel Willoughby,
James M'Naughton,
Stephen Todd,
Abram Allen,
Henry L. Van Dyck, } *Committee of Correspondence.*

The Censors of the Southern and Middle Districts being all residents in the cities of New-York and Albany, candidates for licences are admitted to examination, at any season of the year, immediately on application.

Errors corrected.

In the tenth number of the Medico Chirurgical Journal of conducted by James Johnson, M. D. we noticed a review a work on surgical anatomy, by William Anderson, licentiate of the Royal College of Surgeons in Edinburgh, &c. &., in which the writer, though he has occasionally indulged in some left-handed compliments to the author, has been pleased to speak in such terms of commendation of the whole performance as are calculated to flatter him; inasmuch as its faults particularly those of style are attributed to an American education, and so far from being peculiar to Mr. A. are justly chargeable to all our medical writers—" some forms of expression in the work before us, we confess sounded rather strangely in our ears; but we believe them to be not peculiar to Mr. Anderson alone, but to the whole of our transatlantic brethren." And in the last number of the same work among the notices to correspondents we meet with the following; " Mr. Peter Donaldson, Chirurgeon, of New-York, has put us to the expense of £1. 8s. 6d. postage for a pamphlet not worth one farthing. We must in future refuse all packets from America, and other foreign parts, that are presented to us through the medium of the post office." As the information conveyed by these paragraphs is calculated to give the impression that both the persons have been educated in America, and that Dr. J. himself is in this respect deceived; we have been at the trouble of making some enquiries, and are happy to have it in our power to satisfy the readers of the Medico Chirurgical Journal that the persons alluded to,

are both licentiates of the Royal College of Surgeons in Edinburgh; that they are both aliens, and must have received their education abroad; and, for ought we know, they both may have come to this city, indulging the belief, which is as general in England as it is unfounded, that talents need be no more than mediocré to insure to them a distinguished professional rank in the country. With Mr. Anderson we have some acquaintance, and entertain a favourable opinion of his talents as a surgeon and dissector, and we trust we shall not incur his displeasure by associating his name in the same paragraph with Mr. Peter Donaldson, of whom we know nothing, except as we have been informed, that he writes latin, and scorns all syntax; our object is merely an attempt to put things in their proper places and render unto every one his own.

To Patrons and Correspondents.

The Medical Repository after having been suspended nearly twelve months, is again presented for your patronage and support; and, while the Editors regret the necessity which has caused the delay, they deem it to be their duty to apprize their readers that the circumstances which occasioned it were such as were extremely difficult to control. Their own indisposition together with the breaking out of the yellow fever last fall, would have rendered it necessary to have suspended it some three or four months; but in the beginning of the present year, this number would have appeared, had it not happened that from some cause, an impression had gone abroad, that the work was definitively stopped.—Whether accident or interest had originated the report, it is needless now to enquire; the fact that such report was circulating, was cause sufficient to induce the proprietors to pause, till they had ascertained what effect it might have had on the subscription to their journal. Having satisfied them-

selves on this point, they again venture on its publication, trusting that the medical public will not permit a work which has continued twenty-five years, and been edited with various success, under the direction of different persons, without any view to its profits, to be supplanted through the agency of any means which cannot be supported on their merits.

Medical journals have sprung up of late years in all directions. Some are devoted to the interest of different schools of medicine, whose patronage they of course enjoy; while others are merely the objects of book-making speculation: but all have claims upon the profession as serving to distribute more extensively, than would be possible by any other means, the rapid improvements which the science is every day receiving through the multiplied observations of practical physicians, in all parts of the world. It is *not* an extravagant assertion, however it may be doubted by some who were educated forty years ago, that more progress has been made in clearing up doubtful or disputed points in medicine and surgery within the last twenty years, than during the former century; and at no time since medicine was cultivated as a science, have medical journals been more interesting, or the mutations of medical doctrines, of which they have been the vehicles of distribution, more essential, than at the present.

It shall be the business of the editors, as formerly, to keep their readers, (however remotely situated,) duly informed of the important improvements in medicine and surgery as they occur; while they reserve to themselves the privilege of occasionally correcting the errors into which the most intelligent authors are liable to fall, in consequence of inordinate attachment to favourite theories.

The work for the current year will be published on the same terms and conditions as heretofore, and whenever it shall be thought advisable to alter either, the subscribers shall be duly informed of it.

To the Editors of the Medical Repository.

An abstract of meteorological observations at our Military Posts for the last quarter of 1821, with two general tables, and a few remarks thereon are respectfully offered for publication.

Jos. Lovell.

By the first general table it appears that the aggregate mean temperature for 1821 is 2° 39 below that for 1820, being regularly lower in each month in the year, except October, which is 2° 15′ higher than that for Oct. 1820. The highest degree noted is 100° at Council Bluffs in July; in the previous year it was 105° at the same place in the same month. The lowest degree is −36° at Prairie du Chien in January; in 1820 it was −30° at St. Peters in the same month. The range of the thermometer for the year is 136; in 1820 it was 135. The greatest range in both years was in January, which was the coldest month; the least range in July, which was the hottest month in 1820, as was August in 1821; from which it appears that the general change in the distribution of heat from change of seasons, takes place in this country several weeks later after the summer than after the winter solstice, in consequence of the prevalence of N. W. winds for eight months.

During the four first and four last months the prevailing winds are N. W. & S. W; in May and June S. E. & S; in July and August S. W. & S. or S. E; thus the prevailing winds for the year are N. W. & S. W. The next in proportion are N. E. & S. E. which are about equal. In 1820 N. W. & S. W. were also the prevailing winds. S. E. was next in proportion; W. S. & N. E. about equal. The smallest proportion was from N. & E. which were about the same in both years. The proportion of winds from the western quarter in 1820 was 13.90, Southern 13.36, Northern 11.34, Eastern 9.52. In 1821, Western 13.76, Southern 13.07, Northern 12.94, & Eastern 10.34; thus they were nearly the same, with rather more from the North & East in the last year. The prevalence of the N. W. winds in connection with the geography of the country, gives the chief character to our climate, and accounts for the difference of time required to bring the thermometer to its highest or lowest range.

The proportion of weather in 1821 was 16.95 fair, 6.95 cloudy, 5.50 rain, and 1.07 snow: in 1820 17.69 fair, 6.62 cloudy, 5.08 rain and 1.14 Snow. The difference between the two years is small. The greatest proportion of fair days in 1821 was $\frac{11}{15}$ in August, the least $\frac{3}{16}$ in February; 1820 the greatest about $\frac{2}{3}$ in September, the least $\frac{1}{2}$ in December. In 1821 the greatest number of rainy days was in June, the smallest in March; in 1820 the greatest in July and the smallest in January.

The second general table exhibits a comparative view of the observations made at some of the remote parts, viz. from latitude 29° 30′ to 45° 53′ and from longitude 70° 20′ to 96° 42′. The difference of mean temperature between Fort St. Philip and Mackinac, the extreme southern and northern posts, is 29° 27′; the range 117. The mean temperature at Council Bluffs is 2° 45′ below that at Newport R. I. and 0° 22′ below that at Boston Harbour, the former place is 0° 6′ south and 25° 23′ east, and the latter 0° 19′ south and 25° 42′ east of the first named post. St. Peters is about one degree north and 23° 10′ west of Portland, and the mean temperature is 1. 78 lower. The range at Council Bluffs was 113, at Newport 96, at Boston Harbour 109, at St. Peters 124, at Portland 96. At Council Bluffs the prevailing winds were S. E., N. W., & N. at Newport S. W., N. W., & N., at Boston Harbour S. W , N. W., & N. E., at St. Peters S. W., N. W. & S., at Portland S. W., N. W., & S. E., at Fort St. Philip N. E., S. W., & S. E., and at Mackinac W., E., & N. The greatest proportion of fair days was at Fort Washington, the least at Fort St. Philip and Sackets Harbour. The greatest proportion of rainy days was at Fernandina & Fort St. Philip; the least at Council Bluffs and Prairie du Chien. The proportion of snow was about in the ratio of the latitude. The aggregate mean temperature at Detroit and Sackets Harbour is higher than that at the other posts, reference being had to their latitude and longitude; the prevailing winds at the former place were W., S E., & N E., and at the latter S., S. W., & E., whereas at the other northern posts the N. W. winds bear a large proportion, which accounts for the difference of temperature. The effects of the vicinity of the Atlantic Ocean upon the eastern posts is small, because the prevailing winds are in a contrary direction; they

are great upon the western shore of Europe from the contrary cause; this general course of the winds being produced by the diurnal ærial tides which follow the sun within the tropics, and the counter-currents necessary to restore the equilibrium in the higher latitudes.

It appears that the range of the thermometer is much less at present in the Atlantic States than it was fifty years ago; and the difference is probably greater than it is at present between them and the western states; the winters are of course milder; the mean temperature higher. The same effects from an increase of population and of cultivation of the soil has for a long time been observed in England and on the Continent, and they seem to operate to a great distance. The climate of Italy and the South of France is vastly milder at present than it was in the time of Augustus, though the former is in nearly the same state now as it was then in relation both to its population and cultivation; the change having been effected by the alterations which have taken place in the north and western parts of the continent; from which the prevailing winds blow at some seasons. From similar causes it is probable our climate will continue to improve; although they will be in some measure counteracted, especially in the Eastern States, by the N E. winds; in consequence of the reduction of temperature within the Arctic Circle, by which the climate of Iceland and Greenland and even of part of Europe has been materially affected within the last century.

OCTOBER, 1821.

PLACES.	THERMOMETER. Highest deg. VII.	II.	IX.	Lowest deg. VII.	II.	IX.	Mean Temperature. VII.	II.	IX.	Hottest day.	Coldest day.	WINDS N. days.	N. W. days.	N. E. days.	E. days.	S. E. days.
Machinac,	52	64	62	28	32	30	43 09	47 12	44 22	Fri 26th.	Wed 17th	5	6	4	4	
St Peters,	54	72	58	34	35	28	42 29	57 51	46 35	Fri. 26th.	Wed. 31st	5	7	3	1	7
Sackett's Harbour,	64	66	64	24	50	48	45 74	54 80	49 96	Mon. 1st.	Fri. 19th	4	4	8	1	5
Portland,	58	74	60	22	42	34	44 41	57 67	48 00	Wed. 3d.	Thu 25th	4	4	4	1	2
Fort Niagara,	59	64	58	32	46	38	46 12	54 54	48 54	Mon. 1st.	Fri 19th	2	8	4	1	3
Portsmouth,	69	69	60	31	40	38	47 77	55 00	50 67	Wed. 3d.	Sat. 20th	2	13	1	1	3
Prairie du Chien,	53	77	68	28	62	50	43 58	62 09	52 06	Fri. 26th.	Wed. 17th		14	1		3
Watervliet,	55	74	58	26	49	36	41 16	58 54	46 51	Tues. 2d.	Thu. 25th	5	11	1		2
Detroit,	63	78	64	34	44	40	49 12	60 16	53 74	Wed. 3d.	Thu 18th	3	1	1	4	1
Boston,	61	74	55	30	46	40	45 22	58 51	51 74	Sat. 6th.	Thu. 25th	1	11	3	2	2
Fort Armstrong,	56	78	68	38	68	42	51 77	65 54	55 03	Sat. 27th.	Wed 17th		1	6		3
Council Bluffs,	55	84	63	30	42	33	46 12	66 26	52 29	Fri. 26th.	Wed. 31st	5	7	3		7
New Port, R. I.	66	75	66	40	49	38	52 16	59 74	51 35	Tues. 2d.	Thu. 25th	6	6	3	1	2
Pittsburgh, Arsenal,	51	65	62	50	56	52	52 54	56 80	54 06	Sun. 7th.	Sat 13th	10	2			
Fort Mifflin,	62	76	62	32	46	39	49 00	60 54	47 19	Wed. 3d.	Fri. 19th		6	5		1
Fort Mc Henry,	66	76	70	36	58	50	51 41	64 77	56 51	" 3d.	Sat. 20th	2	8	4	1	5
Fort Severn,	62	78	68	36	52	50	51 38	63 22	54 90	" 3d.	„ 20th	5	6	7		3
Fort Washington,	71	74	71	48	52	50	60 48	62 90	60 54	Mon. 1st.	„ 20th	4	10			2
Norfolk, Va.	75	79	76	48	59	54	62 45	68 38	66 35	" 1st.	„ 20th	2	12	6		5
Fort Johnston, N. C.	78	80	79	50	59	55	67 16	72 77	70 35	" 1st.	Fri. 19th.	19	2	4		
Baton Rouge,	64	88	68	54	72	56	64 12	77 61	68 77	Wed. 3d.	Sat. 20th		2	1	1	22
Fernandina,	74	86	80	65	65	66	73 09	77 41	74 70	Mon. 29th	Thu. 18th		3	21	1	4
Fort St. Marks,	78	86	80	62	77	61	70 67	68 06	73 90	Mon. 1st.	Tues. 16th		3	18		8
Fort St. Philip,	78	86	81	62	67	65	71 16	75 16	72 09	Fri. 12th.	Thu. 18th	3	3	16	3	2

OCTOBER, 1821.

erature. IX.	Hottest day.	Coldest day.	WINDS N. days.	N. W. days.	N. E. days.	E. days.	S. E. days.	S. days.	S W. days.	W days.	Prevaili
44 22	Fri 26th.	Wed 17th	5	6	4	4			5	10	W.
46 35	Fri 26th.	Wed. 31st	5	7	3	1	7	2	4	2	N. W. &
49 96	Mon. 1st.	Fri. 19th	4	4	8	1	5	1	2	6	N. E
48 00	Wed. 3d.	Thu 25th	4	4	4	1	2	3	10	3	S. W
48 54	Mon. 1st.	Fri 19th	2	8	4	1	3		6	7	N. W
50 67	Wed. 3d.	Sat. 20th	2	13	1	1	3	4	4	3	N W
52 06	Fri. 26th.	Wed 17th		14	1		3	4	5	4	N. W
46 51	Tues. 2d.	Thu. 25th	5	11	1		2	7	1	4	N. W
53 74	Wed. 3d.	Thu 18th	3	1	1	4	1	11	8	2	S.
51 74	Sat. 6th.	Thu. 25th	1	11	3	2	2	1	5	6	N. W
55 03	Sat. 27th.	Wed 17th		1	6		3	4	9	8	S. W
52 29	Fri. 26th.	Wed. 31st	5	7	3		7		7	2	
51 35	Tues. 2d.	Thu. 25th	6	6	3	1	2		12	1	S. W
54 06	Sun. 7th.	Sat 13th	10	2				10	9		S. &
47 19	Wed. 3d.	Fri. 19th		6	5		1		18	1	S. W
56 51	" 3d.	Sat. 20th	2	8	4	1	5	2	8	1	N. W. &
54 90	" 3d.	" 20th	5	6	7		3	5	5		N. E
60 54	Mon. 1st.	" 20th	4	10			2	10	1	4	N. W.
66 35	" 1st.	" 20th	2	12	6		5	1	5		N. W
70 35	" 1st.	Fri. 19th.	19	2	4			4		2	N.
68 77	Wed. 3d.	Sat. 20th		2	1	1	22		1	4	S. E
74 70	Mon. 29th	Thu. 18th		3	21	1	4		2		N. E
73 90	Mon. 1st.	Tues. 16th		3	18		8		2		N. E
72 09	Fri. 12th.	Thu. 18th	3	3	16	3	2	2		2	N. E

ailing.	WEATHER				Prevail	REMARKS.
	Fair days.	Cloud days.	Rain days	Snow days.		
W.	21	7	3		Fair.	
& S. E.	21	5	4	1	Fair	
N. E.	19	5	6	1	Fair.	
W.	24	4	2	1	Fair-	
W.	7	18	6		Clou	
W.	25	2	3	1	Fair.	
W.	22	7	2		Fair	
W.	20	7	4		Fair.	
S.	15	12	4		Fair.	
W.	24	2	5		Fair.	
W.	20	8	3		Fair.	
	26	2	3		Fair	
W.	21	5	5		Fair.	
& N.	21	7	3		Fair.	
W.	23	4	4		Fair	
& S. W.	25		6		Fair.	
E.	21	7	3		Fair	
W. & S.	26	4	1		Fair.	
W.	21	5	5		Fair.	
N.	19	6	6		Fair.	
E.	12	10	9		Fair.	
E.	13	3	15		Rain	
E.	15	3	13		Fair.	
E.	7	12	12		Clou.	

are great upon the western shore of Europe from the contrary cause; this general course of the winds being produced by the diurnal ærial tides which follow the sun within the tropics, and the counter-currents necessary to restore the equilibrium in the higher latitudes.

NOVEMBER, 1821.

PLACES.	THERMOMETER. Highest deg			Lowest deg.			Mean Temperature.			Hottest day.	Coldest day.	WINDS N.	N. W.	N. E.	E.	S. E.	S.
	VII.	II.	IX.	VII.	II.	IX.	VII.	II.	IX.			days.	days.	days.	days.	days.	days.
Machinac,	42	42	42	22	22	24	30 86	32 83	31 56	Tues. 6th	Wed 28th	5	9	2	8	1	
St Peters,	34	54	32	10	26	16	26 23	35 60	30 40	Thu 8th.	Mon. 19th		7	4	1	8	1
Sackett's Harbour,	46	58	48	12	22	26	37 73	4[illegible] 10	38 10	Fri. 9th.	Fri. 30th.	3	8	4	2	4	
Portland,	50	55	50	21	24	24	33 86	43 49	39 76	Sun. 4th.	„ 30th	2	2	8	3	4	1
Fort Niagara,	46	61	41	26	30	29	35 36	39 03	36 40	Fri 9th.	„ 30th		1	7			3
Portsmouth,	52	54	50	24	28	22	37 70	44 23	40 60	Sun. 4th.	„ 30th		11	6		9	2
Watervliet,	44	53	48	17	34	20	34 63	41 93	36 03	Tues. 6th.	Wed. 28th	6	6	1	1	1	4
Detroit,	46	58	44	22	30	32	34 40	42 03	37 40	„ 6th.	Fri. 30th.	7	4	4	2	2	1
Boston,	55	59	48	23	29	24	37 26	45 00	39 00	Sun. 4th.	" 30th	1	9	3	4	4	3
Fort Armstrong,	49	56	52	26	29	22	31 90	40 86	36 50	Mon. 5th.	Mon. 19th	3	5	6		2	2
Council Bluffs,	42	64	52	16	30	25	29 00	43 50	35 33	Sun. 4th.	Fri. 9th	3	12		2	9	1
New Port, R. I.	59	58	53	32	33	28	43 86	48 70	41 63	„ 4th	Fri. 30th	2	8	6	1	3	
Pittsburgh, Arsenal,	53	56	55	31	24	25	39 10	42 53	41 00	Tues. 6th	Sat. 24th	11	3	3			4
Fort Mifflin,	38	64	42	34	30	28	37 66	47 80	38 00	Fri. 2d.	Fri 30th		6	10		2	
Fort Mc Henry,	34	62	50	28	44	38	38 00	47 60	41 40	Thu. 8th.	Tues. 27th		7	5	1	4	4
Fort Severn,	54	62	64	30	41	39	40 56	48 73	42 90	Fri 9th.	" 27th.	2	8	3	2	3	6
Fort Washington,	62	68	64	40	44	42	47 76	53 33	50 03	Thu. 1st.	Mon. 26th	3	8	3	1		5
Norfolk, Va.	66	77	72	40	48	45	50 73	58 13	54 66	Tues. 6th.	" 26th	2	12	5		6	1
Fort Johnston, N. C.	70	74	74	42	49	46	55 10	62 00	59 20	Sat. 3d.	Sun. 25th	7	11	3	1	2	4
Baton Rouge,	66	72	62	40	38	38	51 23	59 76	59 43	Thu. 22d.	" 25th	3	1		2	17	1
Fernandina,	74	82	79	40	53	46	58 03	66 36	60 13	Fri 2d.	" 25th	1	11	9		2	1
Fort St. Marks,	74	78	72	32	54	45	51 53	63 90	58 40	Mon. 5th	Mon. 26th		15	8	1	5	
Fort St. Philip,	70	78	72	34	43	42	55 23	63 13	58 90	Thu. 8th.	Sun. 25th	1	6	14	1	2	1

NOVEMBER, 1821.

ure. X.	Hottest day.	Coldest day.	WINDS N. days.	N. W. days.	N. E. days.	E. days.	S. E. days.	S. days.	S. W. days.	W. days.	Prevailing.
1 56	Tues. 6th	Wed 28th	5	9	2	8	1		2	3	N. W.
0 40	Thu 8th.	Mon. 19th		7	4	1	8	1	8	1	S. E. & S. W.
8 10	Fri. 9th.	Fri. 30th.	3	8	4	2	4		3	6	N. W.
9 76	Sun. 4th.	„ 30th	2	2	8	3	4	1	8	2	N. E. & S. W.
6 40	Fri 9th.	„ 30th		1	7			3	6	13	W.
0 60	Sun. 4th.	„ 30th		11	6		9	2	1	1	N. W.
6 03	Tues. 6th.	Wed. 28th	6	6	1	1	1	4	3	8	W.
7 40	„ 6th.	Fri. 30th.	7	4	4	2	2	1	7	3	N. & S. W.
9 00	Sun. 4th.	" 30th	1	9	3	4	4	3	5	1	N. W.
6 50	Mon. 5th.	Mon. 19th	3	5	6		2	2	7	5	S. W.
5 33	Sun. 4th.	Fri. 9th	3	12		2	9	1	1	2	N. W.
1 63	„ 4th	Fri. 30th	2	8	6	1	3		5	5	N. W.
1 00	Tues. 6th	Sat. 24th	11	3	3			4	9		N.
8 00	Fri. 2d.	Fri 30th		6	10		2		12		S. W.
1 40	Thu. 8th.	Tues. 27th		7	5	1	4	4	4	5	N. W.
2 90	Fri 9th.	" 27th.	2	8	3	2	3	6	2	4	N. W.
0 03	Thu. 1st.	Mon. 26th	3	8	3	1		5	6	4	N. W.
4 66	Tues. 6th.	" 26th	2	12	5		6	1	3	1	N. W.
9 20	Sat. 3d.	Sun. 25th	7	11	3	1	2	4		2	N. W.
9 43	Thu. 22d.	" 25th	3	1		2	17	1		6	S. E.
0 13	Fri 2d.	" 25th	1	11	9		2	1	1	5	N. W.
8 40	Mon. 5th	Mon. 26th		15	8	1	5		1		N. W.
8 90	Thu. 8th.	Sun. 25th	1	6	14	1	2	1	5		N. E.

	WEATHER.				Prevail	REMARKS.
	Fair days.	Cloud days.	Rain days	Snow days		
	7	15	3	5	Clou	
W.	14	11	1	4	Fair.	26th. The St. Peter's closed with ice.
	6	15	3	6	Clou.	
W.	14	7	8	1	Fair.	
	2	17	8	3	Clou.	
	15	7	7	1	Fair.	
	8	17	3	2	Clou.	
V.	6	18	3	3	Clou.	
	16	4	9	1	Fair.	
	15	14		1	Fair.	
	18	9	1	2	Fair.	
	16	5	8	1	Fair.	
	14	3	7	6	Fair.	
	9	17	3	1	Clou.	
	21		8	1	Fair.	
	13	10	7		Fair	
	21	3	6		Fair.	
	22	4	4		Fair	
	22	3	5		Fair.	
	14	3	13		Fair.	26th, Frost.
	22	6	2		Fair	
	20	7	3		Fair.	
	15	12	3		Fair-	25th, & 26th, Frost.

are great upon the western shore of Europe from the contrary cause; this general course of the winds being produced by the diurnal ærial tides which follow the sun within the tropics, and the counter-currents necessary to restore the equilibrium in the higher latitudes.

DECEMBER, 1821.

PLACES.	THERMOMETER.									Hottest day.	Coldest day.	WINDS							
	Highest deg			Lowest deg.			Mean Temperature.					N.	N. W.	N. E	E.	S. E.	S.	S W.	W
	VII.	II.	IX.	VII.	II.	IX	VII	II.	IX.			days	days.	days.	days.	days.	days.	days	day
Machinac,	36	36	30	5	12	12	18 32	21 22	19 25	Sun. 2d	Sat 15th	3	4		1	3	1	5	
St Peters,	34	36	30	-22	-4	-13	5 74	17 58	8 42	Sat. 1st.	22 & 23d	2	12	2			1	10	
Sackett's Harbour,	40	42	40	9	10	6	28 45	31 35	31 64	Sun. 2d.	Sat. 29th		11	5	1	6	1		
Portland,	36	46	36	1	8	9	21 67	31 19	27 58	Tues. 4th.	Sun 30th	9	5	2	4	2	1	4	
Fort Niagara,	42	46	38	9	17	16	25 32	29 51	25 70	Sun. 2d	Wed. 26th		2	2		1	4	13	
Portsmouth,	35	45	40	4	10	14	24 58	30 64	28 51	Tues. 4th.	Sun 30th	1	13	1		2	5	4	
Pra. du Chien,	35	40	33	-17	2	-4	9 12	22 09	12 58	Sat. 1st.	Sat. 22nd		17			2	4	3	
Watervliet,	34	45	35	-5	15	18	20 61	31 38	24 77	Tues. 4th.	Sun 30th	3	11	2		2	11	2	
Detroit,	44	50	46	0	16	16	22 48	31 12	27 35	Sun 2d.	Mon 24th	7	2	2	4	2	1	11	
Boston,	36	44	36	2	10	4	25 41	33 25	28 45	Mon. 3d.	29 & 30th	1	8	4		2	1	10	
Fort Armstrong,	36	52	52	-9	4	3	14 96	26 41	20 12	Sat. 1st.	Sun. 23d		6	1		2	8	11	
Council Bluffs,	23	44	30	-13	-2	-8	10 06	21 19	13 15	Fri 7th.	Sat. 22nd	4	16					5	
New Port. R. I.	37	46	50	21	20	10	30 22	36 77	31 64	Sun. 2d.	Sat 29th	4	10	5		2	1	2	
Pittsburgh, Arsenal,	42	44	48	8	28	19	24 96	30 61	29 48	Tues. 4th	Sun. 16th	11	8	12					
Fort Mifflin,	38	48	36	14	27	19	27 12	37 32	30 41	Sun. 2d.	„ 16th		8	8		2		13	
Fort Mc Henry,	40	46	42	14	28	24	28 64	36 90	32 06	„ 2d.	„ 16th	3	8	3	2	7		5	
Fort Severn,	42	50	46	18	30	26	30 67	37 54	35 03	„ 2d.	„ 16th	10	8	3	1	1	3	4	
Fort washington,	50	56	50	30	36	44	40 32	46 13	41 58	Mon. 3d.	Sat. 15th	8	6	2		1	4	5	
Norfolk, Va.	60	50	48	32	39	34	45 16	48 03	46 54	Sat. 22d.	Sun 16th	1	13	5		10		2	
Fort Johnston, N. C.	62	69	65	32	50	42	49 09	55 90	53 38	Fri. 21st.	Thu. 27th	4	11	7	1		5		
Baton Rouge,	62	78	52	24	28	26	44 80	49 45	44 70	Sat 1st.	Sun. 23d	6	1	3	1	11	2		
Fernandina,	72	81	67	40	42	32	54 12	60 74	54 32	Sat. 22d.	Wed 26th		11	11		3	3	3	
Fort St. Marks,	68	74	58	28	44	34	48 19	56 45	51 87	Wed. 5th	Thu. 27th	3	5	13		7		3	
Fort St. Philip,	69	73	66	27	32	34	45 19	53 74	50 42	Sun. 2d.	Sun. 23d	4	5	14	2	2	2	2	

DECEMBER, 1821.

Coldest day.	WINDS								Prevailing	WEATHE		
	N. days	N. W. days.	N. E days.	E. days.	S. E. days.	S. days.	S. W. days	W. days		Fair days	Cloud days.	Rai day
at 15th	3	4		1	3	1	5	14	W.	4	18	
22 & 23d	2	12	2			1	10	4	N. W.	17	11	
at. 29th		11	5	1	6	1		7	N. W.	5	19	2
un 30th	9	5	2	4	2	1	4	4	N.	24	3	1
ed. 26th		2	2		1	4	13	9	S. W.	3	22	1
un 30th	1	13	1		2	5	4	5	N. W.	18	6	3
at. 22nd		17			2	4	3	5	N. W.	16	13	1
un. 30th	3	11	2		2	11	2		N. W. & S.	14	16	
on 24th	7	2	2	4	2	1	11	2	S. W.	18	12	
9 & 30th	1	8	4		2	1	10	5	S. W.	19	5	4
m. 23d		6	1		2	8	11	3	S. W.	19	10	1
at. 22nd	4	16					5	6	N. W.	20	10	
at 29th	4	10	5		2	1	2	7	N. W.	16	6	7
un. 16th	11	8	12						N. E.	15	15	
„ 16th		8	8		2		13		S. W.	13	8	7
„ 16th	3	8	3	2	7		5	3	N. W.	22		7
„ 16th	10	8	3	1	1	3	4	1	N.	15	8	6
at. 15th	8	6	2		1	4	5	5	N.	17	9	4
un 16th	1	13	5		10		2		N. W.	14	9	8
hu. 27th	4	11	7	1		5		3	N W.	10	13	8
m. 23d	6	1	3	1	11	2		7	S. E.	11	7	12
ed 26th		11	11		3	3	3		N W. & N. E.	13	10	8
hu. 27th	3	5	13		7		3		N. E.	9	12	10
m. 23d	4	5	14	2	2	2	2		N. E.	10	14	6

THER			REMARKS.
Rain days	Snow days.	Prevail.	
	9	Clou	
	3	Fair.	10th. The Missisippi closed with ice.
2	5	Clou.	
1	3	Fair.	
1	5	Clou.	
3	4	Fair.	
1	1	Fair.	
	1	Clou.	
	1	Fair.	
4	3	Fair.	
1	1	Fair.	
	1	Fair.	12th. The Missouri closed with ice.
7	2	Fair.	
	1		
7	3	Fair.	
7	2	Fair.	
6	2	Fair	
4	1	Fair.	
8		Fair.	
8		Clou.	
12	1	Rain	
8		Fair	
10		Clou.	
6	1	Clou.	

are great upon the western shore of Europe from the contrary cause; this general course of the winds being produced by the diurnal ærial tides which follow the sun within the tropics, and the counter-currents necessary to restore the equilibrium in the higher latitudes.

Monthly Meteorological Table for the Year 1821, *Embracing the whole extent of t*

1821. MONTHS	Mean Temperature. VII A M.	II. P. M.	IX. P. M.	Aggre. of mean temperature	THERMOMETER. Highest degree and place of Observation.	Lowest degree and place of Observation.	Range.	MEAN OF N. days.	N. W. days.	N. E. days.	E. days.
January,	23 71	32 78	27 79	28 09	74 Fernandina & Camp Ripley,	–36 Prairie du Chien,	110	3 30	9 77	4 08	1 00
February,	36 11	44 36	39 70	39 95	83 Fort Scott,	–11 St. Peters,	94	1 82	7 49	2 57	1 46
March,	36 63	47 14	40 81	41 53	86 Camp Ripley & Fort Scott,	–4 Portland,	90	2 42	10 06	3 30	0 81
April,	46 59	52 30	49 46	49 45	83 Camp Ripley,	11 Mackinac,	72	2 34	5 62	3 32	1 80
May,	59 08	68 96	61 91	63 31	94 Fort McHenry,	32 Mackinac,	62	2 73	4 [illegible]	3 12	2 32
June,	69 76	79 09	71 70	73 51	98 Fort McHenry,	45 Plattsburgh,	53	2 62	2 77	2 65	1 92
July,	69 88	79 28	71 53	73 56	98 Boston and Camp Ripley,	50 Plattsburgh,	48	3 16	3 16	2 16	2 32
August,	71 21	82 05	73 62	75 62	100 Council Bluffs,	50 Plattsburgh,	50	2 92	4 88	2 84	2 57
September,	64 94	74 61	67 70	69 08	96 Camp Ripley,	40 Plattsburgh,	56	2 88	5 00	3 30	2 07
October,	53 74	63 38	57 11	58 07	88 Baton Rouge,	22 Greenbay & Portland,	66	3 37	5 96	5 72	1 16
November,	40 70	48 46	43 71	44 29	82 Fernandina,	10 St. Peters,	72	2 58	7 55	4 79	1 65
December,	29 46	37 20	32 68	33 11	81 Fernandina,	–22 St. Peters,	103	3 48	8 20	4 72	0 93
1821	50 15	59 13	53 14	54 14	100* Council Bluffs,	36† Prairie du Chien,	136	2 80	5 50	4 64	1 66

* August, 17th. † January, 24th.

Year 1821, *Embracing the whole extent of the U. States of Am*

.MOMETER.			MEAN OF WINDS							
	Lowest degree and place of Obser-vation.	Range.	N.	N. W.	N. E.	E.	S. E.	S.	S W.	W
			days.	days.	days.	days.	days.	days.	days.	day
–36	Prairie du Chien,	110	3 30	9 77	4 08	1 00	2 19	2 87	4 31	3 60
–11	St. Peters,	94	1 82	7 49	2 57	1 46	3 12	3 67	5 12	2 45
–4	Portland,	90	2 42	10 06	3 30	0 81	2 54	3 33	5 51	3 30
11	Mackinac,	72	2 34	5 62	3 32	1 80	4 00	4 80	5 30	2 80
32	Mackinac,	62	2 73	4 65	3 12	2 32	6 04	4 57	4 77	2 80
45	Plattsburgh,	53	2 62	2 77	2 65	1 92	6 04	5 54	5 27	2 46
50	Plattsburgh,	48	3 16	3 16	2 16	2 32	4 80	5 52	6 36	3 48
50	Plattsburgh,	50	2 92	4 88	2 84	2 57	5 00	3 80	6 38	3 42
40	Plattsburgh,	56	2 88	5 00	3 30	2 07	4 77	4 80	4 16	3 00
22	Greenbay & Portland,	66	3 37	5 96	5 72	1 16	3 58	2 68	5 62	2 89
10	St Peters,	72	2 58	7 55	4 79	1 65	3 62	2 10	4 58	3 10
–22	St. Peters,	103	3 48	8 20	4 72	0 93	2 79	2 13	5 34	3 44
,	36† Prairie du Chien,	136	2 80	5 50	4 64	1 66	4 04	3 81	5 22	3 06

† January, 24th.

America, and their Territories.

W days	Prevailing	MEAN OF WEATHER Fair days	Cloud. days.	Rain days	Snow days	Prevailing
3 60	N. W.	15 60	8 81	3 22	3 37	Fair
2 45	N. W.	9 18	9 27	7 54	2 03	Cloud
3 30	N. W.	19 00	8 18	1 94	1 88	Fair
2 80	N. W. & S. W.	16 00	7 46	5 00	1 57	Fair
2 80	S. E.	17 93	5 15	7 89	0 03	Fair
2 46	S. E.	17 74	4 70	8 50		Fair
3 48	S. W.	18 88	5 08	7 04		Fair
3 42	S. W.	22 08	4 42	4 50		Fair
3 00	N. W.	18 28	5 84	5 84		Fair
2 89	N. W.	19 37	5 89	5 58	0 13	Fair
3 10	N. W.	14 65	8 62	4 84	1 82	Fair
3 44	N. W.	14 75	9 93	4 10	2 24	Fair
3 06	N W. & S W	16 95	6 95	5 50	1 07	Fair

are great upon the western shore of Europe from the contrary cause; this general course of the winds being produced by the diurnal ærial tides which follow the sun within the tropics, and the counter-currents necessary to restore the equilibrium in the higher latitudes.

Year 1821, *Embracing the whole extent of the U. States of Am*

MOMETER.			MEAN OF WINDS							
	Lowest degree and place of Observation.	Range.	N.	N. W.	N. E.	E.	S. E.	S.	S. W.	W
			days.	days.	days.	days.	days.	days.	days.	day
–36	Prairie du Chien,	110	3 30	9 77	4 08	1 00	2 19	2 87	4 31	3 60
–11	St. Peters,	94	1 82	7 49	2 57	1 46	3 12	3 67	5 12	2 45
–4	Portland,	90	2 42	10 06	3 30	0 81	2 54	3 33	5 51	3 30
11	Mackinac,	72	2 34	5 62	3 32	1 80	4 00	4 80	5 30	2 80
32	Mackinac,	62	2 73	4 65	3 12	2 32	6 04	4 57	4 77	2 80
45	Plattsburgh,	53	2 62	2 77	2 65	1 92	6 04	5 54	5 27	2 46
50	Plattsburgh,	48	3 16	3 16	2 16	2 32	4 80	5 52	6 36	3 48
50	Plattsburgh,	50	2 92	4 88	2 84	2 57	5 00	3 80	6 38	3 42
40	Plattsburgh,	56	2 88	5 00	3 30	2 07	4 77	4 80	4 16	3 00
22	Greenbay & Portland,	66	3 37	5 96	5 72	1 16	3 58	2 68	5 62	2 89
10	St Peters,	72	2 58	7 55	4 79	1 65	3 62	2 10	4 58	3 10
–22	St. Peters,	103	3 48	8 20	4 72	0 93	2 79	2 13	5 34	3 44
	36† Prairie du Chien,	136	2 80	5 50	4 64	1 66	4 04	3 81	5 22	3 06

† January, 24th.

A comparative Meteorological Table for the Year 1821, *at several Military Posts, situated between 2*
70° 20′ and 96 40′ of West Longitude.

PLACES.	Latitude North.	Longitude West.	THERMOMETER. Mean Temperature. VII. A. M.	II. P. M.	IX. P. M.	Aggre. of mean temperature	Highest degree.	Lowest degree.	Range.	WINDS N. days.	N. W. days.	N. E. days.	E. days.	S. E. days.	S. days.	S W. days.	W da
Machinac,	45°33′	84°30′	37 43	42 49	38 56	39 49	80	–25	105	4 58	2 75	1 58	7 16	0 75	0 50	1 58	1
St Peters,	44 40	93 30	37 53	51 05	41 24	43 27	92	–32	124	3 75	5 25	3 00	0 92	3 41	4 33	6 50	3
Sackett's Harbour,	43 55	75 57	45 95	50 69	48 77	48 48	90	4	86	2 83	4 41	4 66	1 08	5 33	2 91	3 75	5
Portland,	43 39	70 20	39 86	52 57	42 73	45 05	94	–18	112	3 75	4 66	2 50	1 41	4 08	3 41	8 25	2
Detroit,	42 40	82 58	45 46	55 29	50 18	50 31	94	–22	116	3 41	1 91	2 16	3 83	2 25	9 75	4 58	2
Prairie du Chien,	42 50	91 45	38 14	53 02	43 32	44 82	91	– 36	127	1 25	11 58	1 16	0 25	5 33	2 66	5 00	3
Boston Harbour,	42 22	71 00	44 02	54 13	45 26	47 80	99	–10	109	0 41	8 66	4 16	2 66	1 83	1 92	9 08	1
Council Bluffs,	41 31	96 42	41 76	56 13	45 86	47 58	100	–13	113	5 25	7 66	2 33	1 08	8 08	0 66	2 00	3
New Port, R. I.	41 25	71 19	48 78	55 00	46 31	50 03	88	–8	96	3 08	7 75	2 91	0 75	3 75	1 83	8 92	1
Port Washington,	38 52	76 55	55 81	62 23	58 27	58 77	90	14	76	4 41	8 41	0 92	0 33	1 00	6 66	4 00	4
Fernandina,	30 45	81 57	67 27	73 64	69 32	70 07	92	30	62	0 66	4 25	7 83	1 08	9 58	0 92	4 75	1
Fort St. Philip,	29 30	89 12	65 89	72 02	68 47	68 76	92	27	65	1 75	2 66	7 25	2 41	5 25	3 16	6 16	1

, at several Military Posts, situated between 29° 30′ and 45° 33′ Nor
20′ and 96 40′ of West Longitude.

Lowest degree	Range.	WINDS								Prevailing	W	
		N.	N. W.	N. E.	E.	S. E.	S.	S W.	W.		Fair	Cl
		days	days.	days.	days.	days.	days.	days.	days		days.	d
-25	105	4 58	2 75	1 58	7 16	0 75	0 50	1 58	11 50	W.	18 41	
-32	124	3 75	5 25	3 00	0 92	3 41	4 33	6 50	3 25	S. W.	17 08	
4	86	2 83	4 41	4 66	1 08	5 33	2 91	3 75	5 41	S. E. & W.	14 83	1
-18	112	3 75	4 66	2 50	1 41	4 08	3 41	8 25	2 33	S. W.	18 41	
-22	116	3 41	1 91	2 16	3 83	2 25	9 75	4 58	2 50	S.	16 00	1
- 36	127	1 25	11 58	1 16	0 25	5 33	2 66	5 00	3 16	N. W.	18 00	
-10	109	0 41	8 66	4 16	2 66	1 83	1 92	9 08	1 66	S. W.	20 50	
-13	113	5 25	7 66	2 33	1 08	8 08	0 66	2 00	3 08	S E.	19 83	
-8	96	3 08	7 75	2 91	0 75	3 75	1 83	8 92	1 83	S. W.	17 83	
14	76	4 41	8 41	0 92	0 33	1 00	6 66	4 00	4 66	N. W.	20 25	
30	62	0 66	4 25	7 83	1 08	9 58	0 92	4 75	1 33	S. E.	15 50	
27	65	1 75	2 66	7 25	2 41	5 25	3 16	6 16	1 75	N. E.	14 83	

North Latitude, and

WEATHER.			
Cloud.	Rain	Snow	Prevailing
days.	days	days	
6 33	2 33	3 33	Fair
6 00	4 83	2 41	Fair
10 08	3 33	2 16	Fair
7 50	3 08	1 41	Fair
10 00	1 83	0 75	Fair
8 58	2 83	1 00	Fair
4 66	4 33	0 92	Fair
8 41	1 58	0 66	Fair
5 66	5 33	1 58	Fair
5 08	4 33	0 75	Fair
6 33	8 50	0 00	Fair
7 91	7 58	0 08	Fair

are great upon the western shore of Europe from the contrary cause; this general course of the winds being produced by the diurnal ærial tides which follow the sun within the